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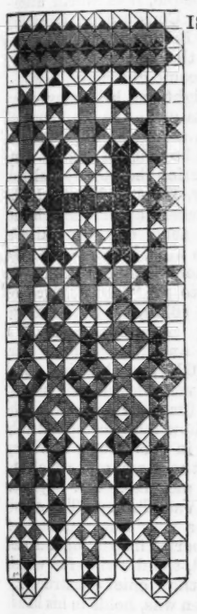
The Viability of London.



HISTORY, it has been said, repeats itself. Whether that be the case or not, blunders, oversights, and nuisances have a remarkable tendency to repetition, unchecked by the results of former experience. The Strand, says the correspondent of a daily journal, "is perhaps the busiest and most crowded thoroughfare in the world. Yesterday [this was at the end of April] workmen ripped up the old pavement and its concrete foundation, and put in its place fresh concrete to receive the new wooden pavement. At six p.m. they knocked off, leaving a lot of lamps, a fire or two, and a watchman. Why do not the authorities arrange for a fresh gang to come on by night? I need not dilate on the inconvenience to the public, the stoppage of business, men, and goods; the trial of temper consequent on the timing of changes of this kind just at the time when London is at its fullest."

Commenting on this letter, the journal which prints it says, "The evil chiefly lies in original defects of construction. It is faulty foundation that causes the pavement to become uneven in its surface." We are not altogether prepared to say as much as this, as of late years it is certain that much more care than was formerly given has been bestowed on the sub-structure of pavements in cities, whether made of stone setts or of wood. But there is a sense in which we wholly agree with the complainants. About the time referred to, it chanced that we had the opportunity of contrasting the inconvenient block thus set up in the Strand with the condition of what used to be the very throttle-valve of London traffic, and the terror of the hard-pressed cattle,—the once infamous Snow-hill. The hill, we all know, has disappeared; the level viaduct having shortened the distance between Holborn and St. Sepulchre's,—by how many miles or portions of a mile we will not stop to calculate. But the level thus attained is not more perfect, we apprehend, than that in the blockaded part of the Strand. The width of roadway, speaking without book, is less over the Viaduct than in the street. Why is one route always liable to dislocation at the most inconvenient times, and the other always quiet and in good order?

The reason is not far to seek by those who visited the Viaduct in building. The architect took the trouble to think, before he substituted one roadway for another. In so doing he came, so far as we can judge from results, to the conclusion, that London traffic is impeded, and London pavements made both bad and costly, by allowing one structure, or one area of ground, to discharge inconsistent functions. To provide a channel for the living tide of man and beast, with ponderous trains of vehicles, is the open, avowed, proper function of the streets of London. But coincidently with this function the street is made to discharge the uses of a railway ditch. It is opened, at the good pleasure of the authorities, to allowing of the digging out a channel for water, enclosed, it is true, in a pipe. Again it is opened to perform the same service, for gas. Nor are we absolutely safe against similar operations for the purpose of drainage; or, may be, of telegraph-laying. The services of all these important arteries of life and light, health and intelligence, are allowed to contend with the passenger traffic at one time, with the operation of her paviours at another, and with the excellence of the pavement in all cases.

Over the Viaduct nothing of the kind occurs, because from end to end of that structure, as our readers know, a properly-designed subway was constructed in the first instance. Thus, when access is needed to pipe or drain it is to be had at once, without the barbarous expedient of picking up the road. Whether this pavement has been,—and if so, at what intervals,—relaid, we are not at this moment aware. But we can confidently expect the publication of any accurate data on the subject. We think that if the saving in the cost of relay alone due to the use of the subway were brought to account, the figures would tell their own tale. And we are quite sure that if any account could be taken of the far heavier loss occasioned by the small but continual damages caused to passengers, horses, vehicles, and residential inhabitants by the hand-to-mouth system, the saving to the public effected by the construction of the subway would be found to be very great indeed.

Why is it that, as each season comes round, it brings the same lesson?—to incur the same neglect? These things are not matters of doubtful opinion. They are subjects on which there is no difference between practical men as to what ought to be done. We suffer, year by year, in the same way, simply from neglect. To ascertain first, and once for all, what is the best system for the construction and maintenance of a street through a city, with all its proper appurtenances, and then to put in the hands of some one efficient authority the power and the responsibility of carrying that system out, is surely the very A B C of civilisation, so far as the public convenience is concerned. What should we think if our railways were periodically thrown out of gear for the purpose of laying new lines of telegraph? What if we had to go round by Oxford to Birmingham because a telephone company was bringing its wires from London to the Warwickshire capital? Why should this be permitted on a line that conveys tens, or may be hundreds, where the railway conveys units? The daily papers would not be large enough to contain the letters of complaint and indignation that would swarm from all sides if on one link of one railway the same free-and-easy indifference to the punctuality of the traffic were allowed which we seem to accept as a matter of course in the busiest thoroughfare of London.

On the railways, however, there would be far more excuse for interruption. We cannot recall anything which, for the last half-century, has materially modified the requirements of London streets, except the slow increase of traffic,—slow, that is to say, in proportion to the growth of the passenger traffic of railways. Gas we have had for that period; pipe-water, as it used to be called, for as long; drainage, whether of storm water or sewage, has been as ancient a necessity. No new element has been imported into the problem, and yet the best, or even the fairly good and undisturbed street pavement seems as far from attainment as ever.

But when ponderous and continuous rails,—heavy and complex crossings,—points and switches, and all the connected structure of the railway, the least breach in the continuity of which renders the passage of a train impossible, have to be altogether replaced and relaid, who knows anything about it? Even in the case of that total reconstruction which took place, some fourteen or fifteen years ago, of the railway approaches to Victoria Station, where the work was carried on day and night,—and certain parts of it only during the latter,—there was not, if we rightly remember, a single train stopped or discontinued. As to difficulty of arrangement, there is no comparison between the facility with which a broad street can be dealt with, where traffic turned from one part can flow readily over another, and the reconstruction of the approaches to a station such as Victoria or Cannon-street. Why is the one carried on with the minimum, and the other with the maximum, interference with the comfort and the convenience of the travelling public?

The reason, we apprehend, is twofold. In the first place, there is this difference between the street and the railroad,—one has existed from time immemorial, the other is a new creation. As to the first, in good old easy-going times, the accommodation of the residents was the first object. Shakspeare's father was fined for depositing the sweepings of his premises in the roadway before his house,—an interesting note

of by-gone days, showing that in Tudor times the Corporation of Stratford was awakening to a sense of public convenience, if not of sanitary regulation. Thus, from time to time, laws, by-laws, and regulations of various kinds have been passed, with the view of serving the ever-changing relations of the public to the public highways. With the increase of population, and the growth of large cities, the original use of a highway, viz., the accommodation of the residential or riparian proprietors (to apply a term constantly used with reference to water-ways) has shrunk to comparative insignificance, as contrasted with the use made of it for through traffic. But this matter has never been grappled with directly, as in the case of the railway. Here the riparian proprietor has no direct advantage from the vicinity to the line,—very much the other way, in fact, as he suffers from the noise and vibration. The residential advantages offered by a railway are measured by proximity to the stations. Thus it is at once seen that to prevent interruption to the traffic is the first duty of the railway engineer. It is his duty to the proprietors, inasmuch as it has a direct bearing on dividend. And those who are best acquainted with the history of such remarkable *tours de force* as that to which we have referred, of the re-arrangement of the approaches by rail to Victoria Station, are best aware of the admirable manner in which that duty has been performed.

On the road, on the other hand, we lack at the same time the motives for maintaining the traffic undisturbed, and the executive authority for carrying out the necessary procedure in the best way. As to this question of ædileship, or local authority, it is too thorny for us now to do more than indicate its existence. But as to the motive, it must, we hold, be taken as doing good service to the cause of civilisation itself, to aid in giving an enlightened public opinion. Very much is added to the cost, trouble, and inconvenience of city life from the neglect which we have above pointed out. If the costly hours, filched from the toil of the hard-driven man of business by street stoppages were totted up, the sum would be of no small amount. How many minutes are lost by the tens of thousands of passengers daily hurrying through the Strand by every day's obstruction of the direct line of thoroughfare? How much of something more important than time itself, viz., nerve tissue, or brain tissue, is fretted away by annoyance at each day's delay? "The Strand up again, I shall miss my appointment!" says the City man. And whether he miss it or not, there ensue twenty minutes of vexation, anxiety, and annoyance. Those twenty minutes form an appreciable demand on the working power of his brain for the day. Occurring day by day, they tend to shorten the working power of the year, not by time alone, but by exhaustion, and tend to shorten life itself. Is this doubtful? Does not every one feel that it is true? Why, then, do we not take the bull by the horns, and associate for the protection of the viability of our streets? If the law cannot protect them, the law is in need of amendment.

THE ROYAL ACADEMY.*

THE central place in Gallery IV. is occupied by Mr. P. R. Morris, with a rather large painting of deer, and two children frightened by them, in a park, and entitled "Foes or Friends?" (370),—another of the works in which the canvas is far too large for the interest of the subject. We cannot imagine any one purchasing a picture like this, except a man of sporting tastes, who might like to have a good picture of fallow deer, and this is a good one, so far; the children are good by themselves, too, and would stand well as portraits; but there is no adequate motive for putting them together on one large canvas. Mr. Morris is distressing rather to those who, like ourselves, have admired much of his work as thoughtful and refined; his two separate children, called "The Tambour-minor" and "The Promenade" (391, 397), are very white and chalky portraits of small children, life-size, the interest or beauty of which we quite fail to discover. Between these hangs one of the best things Mr. Briton Rivière has painted, "Old Playfellows" (392), a sick child in a chair, and a collie dog, with his paw on his young friend's knee, looking up wistfully at him; the dog is a master-piece, beautifully drawn and painted in detail, and exhibiting that remarkably keen expression of sympathy and interest which this breed of dog often does exhibit,—more, perhaps, because the conformation of the head conveys that impression to us, than because collies are really more intellectual than other dogs; for experience shows that some of the most stupid-looking dogs are really the cleverest. But we congratulate Mr. Rivière on the fact that he has also made the human figure in this painting really interesting, which he has frequently failed to do; the head of the child is very touching in its expression of weakness and suffering, nor can we in the least see why it should be called "sentimental," as we observe it has been called, unless the truthful depiction of illness and feebleness of body is to be considered as in itself a sentimentality. Mr. Dendy Sadler has a very clever painting of monks, called "Recreation" (408), in which, however, he has been sorely hampered, as a colourist, by the necessity of painting all the masses of scarcely-varying browns in the monks' dresses, and does not seem to have ventured to relieve this by any colour in the room, so that the whole picture is dingy, an orange-tinted handkerchief tied over the eyes of one monk (the reverend fathers are playing at blind man's buff) forming the only bit of colour in the picture, and serving to deepen rather than relieve the heavy brown tones of the whole scene. But Mr. Sadler is making a very good series of pictures out of his favourite subject, and by a kind of retrospective satire suggesting to us the prevalent littleness and folly of convent life, as that of over-grown semi-pietistic schoolboys. Mr. Marks has a little picture in this room, with hardly any subject, a single figure of a man tying flies, called "The Gentle Craft" (422): otherwise this is rather a depressing room, especially for such things as "After the Honeymoon" (*that* is "sentimental," if you please) and the large coarse painting called "An Audience," which has no title to its position.

The leading pictures in Gallery V. are two, each very realistic, each representing a crowd of figures,—one a Venetian crowd, by Mr. Logsdail, "The Piazza" (477); the other an English village crowd by Mr. Fildes, "The Village Wedding" (515). Mr. Logsdail's former and smaller works, in which buildings were usually the predominant interest, we have more than once mentioned with appreciation; in this large and crowded canvas he has made an immense step, and combined a number of figures of various nationalities into one scene in a manner effective in itself, and showing a wonderful amount of brilliant and truthful detail. To this favourable view there are, however, the drawbacks that the picture is disagreeable and unnatural in effect from the almost utter absence of shadow, and (more serious) that it is exceedingly vulgar in the choice of types, women especially, and the way they are painted. We say "women" advisably, for there is not a lady in the picture, and the two females most prominently in the foreground look like everything that women ought not to be. Among so mixed a crowd it might certainly have been possible to find some foreground figures of less unpleasing type than these. The painter has shown his technical power in painting a picture which few people would care to possess; he may, we hope, turn his powers to better account eventually. Compare this with Mr. Fildes's work, and the distinction is striking. Mr. Fildes's picture is somewhat white and raw in colour, and his crowd is a crowd of homely people, but they represent some really interesting and not repulsive phases of human character. Mr. Fildes has never, perhaps, painted anything better than the bride in this picture. She is a rustic, but a rustic raised into unconscious dignity and delicacy of expression by mingled happiness and bashfulness. To paint such a character is a much more difficult task than to paint the brazen women in the foreground of the "Piazza." The bridegroom is an admirable study too, the more set off by contrast with his friend or relative the guardsman behind, come down from town to grace the country wedding, and afford the painter a "foil" for his rustic characters. There is a great deal else of interest in the minor characters of the group. Mr. Briton Rivière has a fine and serious work in this room, "The Last of the Crew" (498), where a survivor of an unfortunate Arctic expedition is looking out over the fields of ice for the sight of any possible relief, an Esquimaux sledge-dog rubbing itself against the man's legs caressingly. Here, again, there is a great advance in the human element in the picture, in comparison with previous work by the artist. Mr. Leslie's "Wayside Rest" (492) is a pretty girl of his usual type, with a background of sun-lit foliage. Mr. Waterhouse's large painting, "The Favourites of the Emperor Honorius" (462), is a very well-composed work, telling the story pointedly and clearly, and very fine in colour.

The large painting called "A Hymn to Osiris" (576), in Gallery VI., appears to be an attempt to imitate Mr. Long, with very small success; nor are the figures Egyptian, as the title should imply, but more Jewish in cast. We are at a loss to understand any claim which this picture has to its position except its size. Mrs. Morritt's "War" (560) is a curious and clever work, which appears to draw its inspiration from Paolo Veronese, as to colour, composition, and feeling, though the texture is as different as possible from his, and, in fact, quite peculiar and distinct from anything else in the exhibition. It is a balcony full of women in Italian Cinquecento style and costume, looking on at troops passing below. Though too much like a modern-antique, it is worth attention. "The Bey of Constantine receiving Guests" (593), by Mr. Bridgman, is hardly one of the best pictures by this follower of Gerôme; it is an interior of Saracenic character, in which the intended effect of light and brilliancy seems hardly to have been attained; the fat figure of the host waddling out along the line of carpet to where his guests are bowing to him, is very characteristic, and his action thoroughly realised. A small painting by Mr. Watson Nicol, "Lochaber no more" (611), where an old Scotchman and his daughter and their dog are taking a last look at their native hills, is one of the most true, pathetic, and finely-composed things in the collection. Next to it "The Church of St. David, Quimperlé" (612), by Mr. Stanhope Forbes, is interesting as a painting of a curious little building and its precincts. Mr. Reid's, "A Spill" (635), a hunting-field incident, seems to us very devoid of interest or story; far too large for the value of the subject. It is surprising how many comparatively large works there are in this year's Academy of which we must say the same, and which are like magnified cabinet pictures. Mr. Seymour Lucas's "A Whip for Van Tromp: The Admiralty, 1652" (653), is a very clever picture of a set of figures of the period inspecting a model of a ship of the period, the drawing for which one of them, probably the "chief constructor," or whatever his title then was, holds in his hand. This is admirably painted; but here, again, we cannot detect very much story in the countenances of the party, or gather much as to the light in which they regard the matter. As a painting which really has a point, and a very marked one, may be named Mr. Bottomley's "Maternité" (642), a sad, serious painting of a woman evidently worn with the struggle for life, holding negligently in her arms an infant, probably more of a burden than a joy to her, and looking at a painting of the Madonna and her Child in Glory, as if contrasting their lot, or petitioning for sympathy. The hands, very well drawn, are a little too much like a lady's hands, and do not belong to the class of woman supposed, and the Madonna figure is not well represented; but there is true pathos in this, and there is an idea of meaning something more than merely painting imitations of persons and inanimate objects; the picture is a kind of poem, with a moral beauty and significance in it. There are few enough of such, unfortunately, in the Academy collection.

Mr. Archer's "Dieu le Veult: Peter the Hermit preaching the First Crusade" (678) is a large picture crowded with figures, very well drawn and very well composed in regard to their relation to each other and to the central figure, a point in which some other painters of crowded scenes might advisably take a lesson from him. The early Lombard architecture of the building from which Peter addresses the crowd has been carefully studied; there is an oversight as to one of the background buildings on the right, which is too late for the date of the incident. Had there been somewhat more of Mediæval "wolfishness" in some of the figures, this painting should undoubtedly have claimed a central place in the hanging; as it is, it shows a careful study of composition in the illustration of an important historical incident, and certainly tells its story clearly. Opposite to it is Mr. Sidney

* See pp. 596, 626, *ante*.

Holland's picture of "The Trial of a Noble Family before the Blood Council, Antwerp, 1567" (723), a well-meant and seriously imagined picture, which lacks force and individuality. Mr. Boughton's "Suspected of Witchcraft" (753) is a painting from the same model as the sacred mistletoe in the Grosvenor Gallery, and equally wooden and bloodless; we cannot make out what the artist has been about in these two pictures. Mr. Clarke's little picture, "Homely Toil" (745), has charming points, as has another small work of his in Gallery VIII., "A Hampshire Cottage" (785), but Mr. Clarke has not fulfilled his "Early Promise."

The best work in Gallery VIII. (still omitting the landscapes) is Mr. Blair Leighton's "Little Nell and her Grandfather" (891), inasmuch as it truly realises the characters intended, and therefore fulfils the highest aim of painting of its class." "The Water Dance" (884), by Mr. Hodgson, an Arab lad dancing with a glass bowl of water balanced on his head, is very clever; the object, of course, is to go through the dance without spilling the water, and the effort to do this is very well indicated in the pose and manner of the dancer. "The Courtship of William II. of Orange" (820), while he and his adored were still children, is a pretty picture by Mr. Wynfield; far superior to his picture in the same room last year. "An impromptu Dance," by Mr. Fred. Brown (834), is a street scene at Chelsea, where some girls and children are dancing (poor things) to the music of one of those accursed barrel-organs; there is a clear light in the scene, and happiness visibly depicted on the face of one of the children. A small painting of more thoughtful class is Mr. Kindon's "Old Cronies" (786), a powerful study of two old and rather dissipated-looking women in dark garments, relieved against a whitened wall with scraps of advertisements adhering to it. Mr. Eyre Crowe's "Market-place, Evesham" (784) and Mr. Claude Calthrop's "Interior at Ham House" (833) are two capital specimens of architectural paintings. Gallery XI. contains Mr. Ernest Crofts's largest, though perhaps not his best, picture, "Charles I. on his way to Execution" (1502), walking with Bishop Juxon along the Mall to Whitehall; the king seems stately and unmoved, the bishop alone shows signs of emotion, which is very likely the truth of the matter. The question occurred in looking at it, how near does this come to being a representation of the actual facts? We may surmise that in this case it is very near. We know that the king lodged the night before at St. James's, we know his likeness and the dress he wore, we know pretty well from old prints what the Mall then looked like, we must presume that there was a strong guard of Cromwellite soldiers, and we know their dress; so that here we may be allowed to suppose that the picture represents all the main incidents in the scene as they must have happened. In Mr. Crofts's picture an incident (also probable enough) is the introduction of a sympathising Royalist among the spectators at the side of the walk, whose appearance draws the attention of all the Puritan soldiery. This is a very serious and thoughtfully-painted work. There are not many other figure pictures in this gallery calling for notice; "The Ruling Passion" (1,450), by Mr. Laslett J. Pott, representing a cock-fight held in the sitting-room of a gouty amateur, with his friends about him, is a clever thing, the best thing the artist has done to our recollection.

Of the landscapes of this year the one by Mr. Alfred Hunt which is hung, "A North Country Stream" (648) only stands on different footing from most of the rest as the work of a painter who presses into the very heart of nature to read the secret of her beauty, and to translate it in art, and who is not content to have merely mastered a clever method of showing one effect and to repeat that year by year. One result of Mr. Hunt's delicate and conscientious rendering of a scene is that his work is far too refined for Royal Academy atmosphere; it is painting to be looked at undisturbed by coarser surroundings, and loses some of its true effect on the Academy walls among a crowd of other paintings. The present work is a summer scene on a quiet river, brown under the reflections of masses of trees, every light and shade in the foliage of which has been carefully studied. Those who, like Mr. Hunt, do not paint for exhibition tone, nevertheless have their reward; and this is a picture to live with and love, beside which the annual repetition of their stock receipts by some of the popular landscape-painters seems only like a kind of trade rather than an art. Mr. Peter Graham's highland scenes with cattle, and Mr. Vicat Cole's river scenes, are quite as good as they have been for some years past, but we know them all by heart. Mr. Hook repeats one treatment of the sea very much too, but it is so powerful and true a treatment that one can afford better to see it repeated; and his "Catching a Mermaid" (28), one of the two hung on either side of his own portrait, perhaps on the whole surpasses anything he has ever done in indicating the motion, the colour, and the surface of sea-water in a breeze and under cold grey light; we seem to forget paint in looking at such a work, and feel the salt sea breeze in our faces. We feel an increasing doubt in this respect as to Mr. Brett's in some senses wonderful sea-pieces. He has given himself lately to the task of realising the sea in calm weather and under bright summer sun, and in his endeavour to do this with the greatest force and vividness he seems to have overstepped the mark and made his seas too blue, hard, and steely. But in realism of foreground he is almost unapproachable, the sand and rocks in "Those Yellow Sands" (142) are deceptive to the eye in their truth and powerful painting of every detail. Mr. Goodwin sends an "Arabian Nights" scene which is not quite equal to his scene from "Sindbad" a year or two ago; it is "The Enchanted Lake" (83), and looks a fine piece of fanciful and imaginative effect, but is hung rather too high to be properly examined: we confess to a feeling that a little of this ideal and fairy landscape-painting is enough; it is a kind of thing, however well done, of which the interest is not very lasting; his other work, representing Prospero's island (1,521), is admirable. Mr. Leader's "Parting Day" (98) is gorgeous, but hard; Mr. Halswelle's landscape (688) is steely grey and hard, as hard as steel itself, the repetition of an effective receipt recently discovered, and that is all. If these works fulfilled the ends of landscape art, there would be little of intellectual interest in that art. Mr. MacWhirter, who has been in the habit of painting the same birch tree too often (perhaps it attains a certain market value), has, at all events, gone out of his beaten track in his two landscapes in Gallery II., "Corrie, Isle of Arran," and "Sunset Fires" (157, 164); the former, a bright breezy sea-coast picture, is the best; in the latter, the sunset is rather colour than light; it is meant for a very fine effect, and only just fails. A really fine and impressive winter landscape is Mr. Farquharson's "The Joyless Winter Day" (764), a waste scene of snowdrift threatening to bury the sheep in its folds: this is a fine and very real thing. "The Adder's Pool, Carnarvonshire" (255) is a powerful piece of effect by Mr. Oakes, whose "Salmon River" (376) is, however, a great failure, far beneath what the painter once did when he worked more conscientiously from nature, and made less attempt to be picturesque and poetical, for which attempt all landscape-painters have not the requisite gifts, and would do well rather to make the more of the gift of realism without trying to be poetical. "Moonrise on a Teesdale Moor" (294) by Mr. M'Lachlan, is a powerful sketch rather than a picture; it looks like moonlight, and in this respect may be advantageously compared with the large moonlight picture in Gallery III., by Mr. Yglesias (339); if the painter ever saw so much light and such an amount of detail in moonlight as that, he has seen what no one else has ever seen. It is astonishing how few people who undertake to paint moonlight seem to have observed how very little light there really is in a moonlight scene; even under the brightest moon, how little detail can be really seen, and how dark and massed the shadows are. Mr. H. W. B. Davis's landscapes are all what one may call solid and well painted, and the cattle in his foregrounds admirable; landscape and cattle seem in his paintings mutually to help each other; but, apart from the cattle, his landscapes this year seem artificial and uninteresting. "Springtime at Tillietudlein Castle," by Mr. David Murray (843), is a pretty Spring effect, with plenty of light in it, though it strikes us as an imitation of some other painters' style, a conviction which not unfrequently comes across one at the Academy exhibition. "The First Frost" (621), by Mr. A. Parsons, is a specimen of landscape which is no mere receipt-making, but a most carefully-studied portrayal of character and colour of woodland landscape at the time of year depicted. Mr. J. B. Knight has two or three good landscapes in his well-known style, and Mr. H. Moore a fine study of calm sea (1,444), and a still better work, "Between the Showers" (1,461), a coast scene dashed over with flying gleams of light, after the manner suggested by the title, and carried out with very picturesque force and freedom.

If there were more of interest in the sculpture of this year we should not have dismissed it at the close of an article; but there is a great deal that is very poor and vulgar, and scarcely anything that is of the highest rank. Mr. Simonds's "Perseus" is disappointing. It is a fine head, but the attitude is somewhat strained and stiff, and the pose of the figure as a whole does not impress us nearly so favourably as it did in the small sketch sent to us as an invitation card to a private view of it. Mr. Birch's "Earl of Beaconsfield," the model for a colossal statue for Liverpool, is a very successful example of a portrait statue of this class. The robes are treated with sculpturesque breadth, and the head is admirable, both as a likeness and in its characteristic pose and expression. Mr. G. A. Lawson sends an interesting study of the girl figure, as distinguished from the matured female figure, in his "Girl and Tortoise" (1,549), a girl of fifteen or so, nude, holding a tortoise in her hand. There is no idea conveyed in the figure. It is a figure, that is all; but it is pretty in its unaffected simplicity, which is more than can be said of Mr. Stirling Lee's contorted figure called by the magnificent title, "Dawn of Womanhood," one of the instances of titles far above the real achievement of the work. The recumbent figure, with head thrown back and agonised expression in the features, suggests rather the idea of "night-mare." Mr. Fry's "Vengeance," a life-size of a female figure creeping on hands and knees, hiding a dagger behind her, is odd-looking from some points of view, but original and forcible in its idea and execution. Mr. Onslow Ford's "Henry Irving as Hamlet" is a spirited and real likeness. Among the numerous busts may be named as of special interest Miss Ferguson's "Miss Macleod of Macleod" (1,547), a carefully-finished portrait of a very fine and interesting old lady's countenance; Mr. Milo Griffith's "An Evening Star" (1,550), a bronze ideal bust; Mr. Boehm's "J. E. Millais" (1,581), the sculptor's diploma work; Mr. Havard Thomas's "Mrs. Bernard Cammell" (1,603); Mr. A. Gilbert's "Study of a Head,—bronze" (1,600); Mr. R. B. Browning's "Adelia Abbruzzesi" (1,604), which is really a portrait study, also in bronze (Mr. Browning seems determined to fly at everything, having appeared successively as figure-painter, landscape-painter, and sculptor); and Mr. Amendola's "Lady Brooke" (1,671), a beautiful head, but somewhat spoiled in the marble by over-finish and polish, which takes away the characteristic light and lustre of marble, and gives it an almost waxlight surface. Among sculptural vagaries is by far the worst we ever remember at the Academy, a figure of a nigger minstrel, with bronze face and hands, and coat and other vestments of different-coloured marbles, under the title, "Oh, goodness, gracious me!" The sculptor is one Calvi, we presume an Italian; English sculpture has never fallen so low as that, and the committee did little credit to their judgment in admitting such a piece of vulgarity, which does not deserve the name of art. "But you would admit the same thing painted?" Yes, on a small scale, at any rate; but what is admissible in painting is not necessarily admissible in sculpture, which is the art of pure form, not of realism. And that is exactly the reason why a higher standard of criticism must be applied to sculpture than to painting, as it is, almost unconsciously, by many critics,—a matter of which we have heard sculptors complain. They should not do so; it is a compliment to the dignity and intellectual character of their art. A light character sketch may pass muster in painting, which would look grotesque in clay; a figure may interest us in painting from beauty of colour, carrying off weaknesses in the form and conception; the same figure cut out in cold marble must have much higher abstract qualifications to evoke our sympathy and justify its existence.

Surveyors' Institution.—The next meeting wil be held on Monday, May 21st, when a discussion will take place on the Government "Agricultural Tenants' Compensation Bill."

THE KING'S PALACE AT THE TOWER.

Gloster. My gentle nephew, they were ill-advised
To tutor you with such unfitting terms
(Whoe'er they were) against this royal mansion;
. . . . Cæsar himself,
That built the same, within it kept his court,
And many kings since him; the rooms are large,
The building stately, and for strength beside
It is the safest and the surest hold you have.
T. Heywood's "King Edward IV."

THE Office of Works have made rapid progress with their scheme of demolition at the Tower, to which Lord Granville alluded at the Royal Academy dinner. Scarcely anything remains but a carved stone trophy and one heraldic shield (which are inserted in an adjacent wall) of the storehouses and Ordnance offices which in the course of last century arose over the ruins of the King's Palace. One may now obtain a fair view from the south-east of the Conqueror's "Arx Palatina," "la Blanche Tour deinz la tour de Londres" of King Edward III., conspicuous from this side for its distinguishing peculiarity of a bold half-round bow which constitutes the apse of the beautiful Early Norman chapel dedicated to the Evangelist St. John. Commanding the river, as of yore, Gundulf's Keep again stands proudly aloft in solitary pre-eminence above the surrounding works of the inner and outer wards. Once more is plainly visible from below the southern front, having in its uppermost, or "state" floor, the picturesque short arcade of eight windows set within recesses in couples, having a plain baluster in common,—one pair of which are probably the only windows in the Keep that present quite their original appearance. The arcade opens from the mural gallery, running around the exterior of the Council Chamber and the adjoining room, wherein the contents of the former Horse and Queen Elizabeth's Armouries are in course of re-arrangement.* From one of these windows Flambard, bishop of Durham, let himself down, not forgetting his pastoral staff, by a rope, which had been conveyed to him in a flagon, having intoxicated his guards with some of the good cheer that was plentifully supplied to him. Flambard, "*pacitator Ranulphus, vir pessimus*,"—Rufus's faithful, albeit rapacious minister, had, by severe exactions, greatly promoted the Tower works. He is the first state prisoner here of whom anything certain is known. Sir F. Palgrave says he was confined in the Council-chamber, under custody of Walter de Magnaville (or Mandeville, ancestor of the earls of Essex and dukes of Manchester), hereditary Constable. Committed to the Tower 1st Hen. I., more to satisfy the people's resentment than the king's, and thus handsomely lodged, he seems to have been well treated, since the large sum of two shillings was assigned for his daily needs. Though injured by his descent, the rope proving too short for a fall of nearly 70 ft., he made good his escape to Normandy. Flambard eventually recovered his see, where he completed the cathedral, and added a moat to the Palatine Castle; he also lived to endow Kepyer Hospital, and found Norham-on-the-Tweed. In the southern front appear the four windows of the chapel southern aisle, two of them in the exterior pilaster strips against this face of the Keep, with three windows of the triforium above. The chapel walls are from 4 ft. to 5 ft. thick; in common with the rest of the White Tower its exterior was defaced, at the hands of Wren, by pointing with flint chips and mortar and the substitution of Portland for the old ashlar dressings; but the windows, enlarged for the most part throughout the structure, are original openings.

That the White Tower was not designed for a customary residence is evident from the tripartite division of each floor, the many massive posts in the several rooms, and the inconvenient means of access from one stage to another. Its original main entrance is not ascertained. Tradition points to the since-enlarged door on the northern, but most exposed, side, about 12 ft. from the ground, from which there is a modern descent to the prison-vaults. Another opening above, now used for the reception of heavy stores, bears traces of an over-arch as though intended for a door of greater size. It would not appear, however, that there ever stood by this face of the Tower any barbican or fore-work, as at the later Norman keeps of, for instance, Scarborough or Rochester. Moreover, the interior, whilst admirably adapted for purposes of safety, is comfortless; it has but four garderobes and one fireplace, and, except in the Chapel, was entirely devoid of ornament. The present door opens into a dark first floor, whence a turnpike vise in the circular north-eastern (Flamsteed's) turret leads to the basement and to the floor above, this latter being entered by a bent and narrow mural passage. From the second floor two turret newel staircases commence to the upper story and battlements. Further, the Council Chamber and adjoining room on the upper story are approached only by galleries in the walls too narrow for two persons to walk abreast. There was another approach from the royal lodgings, consisting of a well-stair, in the southern wall, from whose head a short gallery leads into the Chapel. This is the staircase, commencing at about 14 ft. from the ground-level, by which visitors now enter; at its foot Sir Christopher Wren found the supposed remains of the young princes,—King Edward V. and his brother. Another doorway communicates between the Chapel and the Banqueting Chamber on the second floor.* The mural gallery, about 3 ft. wide, around the "state floor" opens into the chapel triforium by one end at the south aisle, by the other at the north aisle on the chevet.

The removal of the store-houses from each side of the roadway into the inner ward from the drawbridge, flanked by the Well and Cradle Towers on the outer ward, reveals the western side of the Salt Tower. This, called Julius Cæsar's Tower in the Survey of 1532, caps the inner ballium south-eastern angle.† Its western face retains traces of the curtain wall, 10 ft. thick and about 20 ft. high, that stretched westwards to the Lanthorn, and thence to the Wakefield, or Record, Towers. The curtain, here subsequently displaced for the Queen's Gallery, formed part of a revetment to sustain the heaped-up ground along the fronts of the modern inner ward. The natural elevation from the waterside is perhaps increased by the soil piled from the ditch which Longchamp re-excavated. The slope trending northwards is very marked in the rise,—one in ten,—through Edward III.'s Gatehouse,‡ in the steps beyond, up to the parade and Tower Green, and in the flight of stairs down to "Mint-street," at the north-eastern corner by the Martin Tower. Where the Palace stood the levels between the two wards are almost equal. Following the Norman plan, manifest at Rochester, Carlisle, Porchester, Bamborough, &c., the ordinary lodgings for the castle lord and his suite were placed within the inner ward by the keep. But a notable feature of the Tower of London is that the palace buildings had, in addition, encompassing walls of their own. Situated on the lower slope of the inner ward, at its south-eastern corner, they lay within an area connected with the White Tower by a northern and a western wall. The former of these, known as the Wardrobe Gallery, united the Keep with the Broad Arrow Tower, having at its centre point a circular tower and turret,—the Wardrobe Tower. In the Survey of 1532 this is styled "the tower at the east end of the wardrobe"; the gallery remained until the close of the succeeding reign. The western wall joined the northern face of the Wakefield Tower to the Keep. It also carried an intermediate gateway between two towers, similar in shape to the Byward and Middle Towers, — Cold Harbour Tower,§ the now site of the garrison main guard. This western wall and the curtain between the Wakefield and Lanthorn Towers were probably as ancient as the former of those two towers. The two walls, their towers, and the four curtains which, meeting at the Salt Tower, made a defence in this quarter for the royal precincts, as well as the apartments themselves, clearly appear in a plan of 1553. In the earlier surveys the collected buildings, dating from Stephen and Henry II., are named the "Inner Ward"; they formed the first exterior defence to the Conqueror's citadel. The three Wardrobe, Lanthorn, and Cold Harbour Towers are shown as cylindrical in shape, resembling the Wakefield Tower, which is Late Norman. The various apartments would seem to have ever been under repair, absorbing much of the money that from time to time was expended upon the Tower.

During King Henry III.'s prolonged reign, the more pronounced character of a palace was assumed by the fortress, which hitherto had been mainly a refuge and a prison. William Rufus built the greater part of the *enceinte* to the modern inner ward; Flambard deepened the ditch.* Henry II., and his two sons after him, expended considerable sums upon their residence here, its storehouses and outworks. When King Henry III. ascended the throne the inner ballium, then in all probability abutting towards the south upon the river foreshore, was guarded by the Hall (Wakefield); Robyn the Devyll's (Devereux); Bell; Martin, or Jewel; Lanthorn; Wardrobe, and Cold Harbour Towers. To later reigns we must assign the other existing towers along the inner and outer walls. The Devereux Tower (restored by Salvin) is certainly no later than King Richard I. or King John, if, indeed, it be not co-eval with the Wakefield Tower, whose basement dates from King Stephen or his successor, and is a marvellous piece of masonry for that or any other subsequent period. King John used the Martin, formerly Brick, Tower (whither the regalia was removed from the White Tower, *temp.* Charles I.) as his treasury,† for which purpose it regularly served from the 37th Hen. III. The last-named monarch built the upper story of the Wakefield Tower, and close by, to the north-east, the Banqueting-hall (whence its earlier name), in which he celebrated his nuptials with Eleanor of Provence. This hall was demolished during the Commonwealth. He also erected the scarp of the outer ward, much of whose original fabric survives, the Well and Develin Towers thereon, together with the Quay. The Develin Tower stands wholly in the ditch, at the furthest south-eastern extremity of the fortifications, joining an ancient dam for keeping up the water in the moat. It was known *temp.* Richard II., when Chaucer was clerk of the works,—as Galighmae's; in 1549, as the Galleyman; and in 1641 as the Iron Gate Tower. To this same sovereign (Henry III.) is due the commencement, if not the completion, of the Cradle, Salt, and St. Thomas's (the Water or Traitors' Gate) Towers. The Lanthorn Tower, its foundations just uncovered, had always been part of the royal Palace, containing the king's bedchamber and private closet. It was circular in form, and most likely of the same age and size as the Wakefield Tower. The Queen's private lodgings and garden, with the Queen's apartments and gallery, occupied the space that is now cleared. Numerous entries in the Pipe, Mise, Close, and Liberate Rolls‡ testify to the extent and costliness of Henry III.'s operations. Military engines and stores were sent in, timber was brought from Havering, iron, steel and charcoal were purchased for the smith, with large supplies of lead, stone, hide for the balistæ, and other material. The Pipe and Liberate Rolls contain entries for 2nd March, 1238, relating to repairs in the King's chambers. The completion of the chimney in the Queen's chamber and the making a good and fitting spur (partition) of boards between the chamber and chapel,§—the chapel being the oratory still shown in the south-eastern recess on the first floor of the Wakefield Tower as that where Henry VI.'s body was found. In 24 Hen. III. occurs an item of 30*l.* 16s. 4d. for "una navata" (ship-load) of marble and four ship-loads of Purbeck. Mr. Clark observes that only in the cills of the two windows in the sacrarium of St. Thomas's Tower has Purbeck stone been found in position, though traces exist in the adjacent rampart walls and elsewhere. The activity with which the works were conducted is evinced in the immediate rebuilding of the St. Thomas's Tower, which twice fell down: at the second occasion, it is said, on the first anniversary of the former fall (April 23rd, 1240). The vulgar ascribed the second accident to the indignation of the martyred archbishop and saint at the injury which the new defences threatened to the

* See *Builder*, vol. xliii., p. 644 (18th November, 1882).

* In the eastern wall of the Banqueting Chamber is the circular-headed fireplace with vertical flue, like to that in Colchester Castle.

† For a good view of the Salt (petre) Tower, recently restored, see Archer's "Vestiges," part iii. 1846.

‡ The Garden Tower of Henry VIII.'s survey, so called from its propinquity to the Constable's garden; in 1597 it bore its present name of Bloody Tower.

§ Engl. *ceald-herberga*, cold herberge (Fr. *abri*) or shelter.

* Matt. Paris describes his ineffectual project to fill the ditch from the Thames.

† He deposited 4,000 marks here in 1212. This should not be confounded with the present Brick, or Burbidge, Tower. The Middle used to be called St. Martin's Tower.

‡ Conf. amongst other authorities Bayley's "History of the Tower," and a paper read by Mr. G. T. Clark in 1866 at the congress of the Archæological Institute.

§ Et in cameris Regis in turri Lond. reparandis et chiminee camere Regine perficiendis et uno spiro de bordis et decenti faciendo inter cameram et capellam nove turrelle eiusdem turris prope aulam Regis versus tamisiam, xvil. iijs. viijd. per breve . . . ."—*Rot. Lib.*

citizens. The stability of the existing fortifications throughout the Tower is the more remarkable considering the nature of the ground, in one part traversed by the old City ditch, on which they were placed. On the 24th of February, 1240, extensive repairs were ordered for the Queen's chamber; the same entry of the Liberate Roll transcribes the king's commands for improved drainage. Later in the year the keeper is told to whitewash the whole of St. John's Chapel, and fit it with three painted windows, representing the Virgin and Child, the Trinity, and the Evangelist; to paint the rood and beam beyond the altars, and to whitewash all the White Tower. In 39 Henry III. (1254-5) is charged a sum of 22*l.* 0*s.* 20*d.* for a house for the elephant presented to the king by Louis IX. of France: a notable addition to the menagerie Henry III. had established in the Lion Tower (at the Bulwark or Spur Yard), on receiving three leopards, "in token of his own regal shield," from the Emperor Frederic II. The successors to the well-cared-for lion, the famous Polar bear from Norway who used to go "a-fishing in the Thames," and the animals of which Addison discourses so pleasantly in his *Freeholder* (No. 47) were removed about fifty years ago to the Zoological Gardens. The Lion Tower was soon afterwards replaced with the present contemptible ticket-office.

A chosen, at times an enforced, home of English monarchs from Stephen to James I., this ancient Palace's story is told in the lives of the princes of our two greatest dynasties,—the Plantagenets and the Tudors. We lately touched upon some of the events it witnessed; to chronicle its annals fully were to recount the most stirring, the most resplendent, the most saddening episodes of our country's history. Within those walls, which gradually disappeared in the times of the Commonwealth and the Stewarts, sovereigns and their subjects, their favourites and their victims, have alike experienced the extremes of good and evil fortune.

ARCHITECTURE AND ARCHÆOLOGY IN WESTERN AND EASTERN SYRIA.

STEADILY, though silently, the great work of the exploration and delineation of Palestine is assuming its position among accomplished facts. That position is one of far more exhaustive importance than was anticipated even by the most sanguine of the early supporters of the Fund. Of the One-inch Map, in twenty-six sheets, with its elaborate hill-shading, and of the hardly less instructive, while more handy, and more beautifully engraved, reduced map on the ½-in. scale, we have spoken when they were brought before the public. The large map is to be accompanied by seven quarto volumes of descriptive text. Of these five are now printed, and the sixth, which is devoted to the description of Jerusalem, and the seventh, in which the natural history of Palestine, under the editorship of Canon Tristram, will be given in descriptive text, illustrated by coloured plates, are in course of execution. When the whole is complete it will form a *corpus* of historic, archæological, architectural, geological, physical, and physiological information as to the Holy Land to which it will be difficult to find a parallel as to any country in any library in the world. It will form, in fact, a monograph of the Holy Land, reaching back to the early times when the exodus was unaccomplished, showing the relationship between the occupants of Philistia, Phœnicia, and the inland valleys known as the abodes of the Canaanites, and the natives of the surrounding country, and detailing most of the changes wrought by the conquest under Joshua.

In all this, while there is much that is old, as well as much that is new, the old assumes a fresh emphasis and meaning under the light thrown upon it by the facts collected by actual survey; and this is the more so from the care that has been given to avoid theory, or the advocacy or attempted demolition of theory. In the early stages of investigation, theory, no doubt, forms a valuable aid to the discoverer. In fact, in such a case as that of Palestine, it may be said to be almost essential to any attempt at the task of discovery. Few men would have given their attention, their time, or their money to effect the survey of a country which possesses so little in its physical condition to attract the traveller, unless under the influence of theory; whether it were, as 700 years ago, the devout faith of the Crusader, or whether it lingered on the footsteps of Constantine, and strove to reconstruct, in imagination, the mysterious *periboli*, vaults, and pinnacles of the Temples of Solomon, of Ezra, and of Herod. It was the love of men like the founders of the Fund for the Holy Places that led them first to form theories on their locality; then to throw on those places the light of survey; then to fight,—fiercely it might be, if briefly,—against every new deduction that was irreconcilable with older opinions; and finally to subside into acquiescence with the extinction of all imperfect theories in the presence of ascertained fact.

The third volume of the Memoirs is enriched with an appendix containing the latest particulars collected by Captain Conder, R.E., during the tour of their Royal Highnesses Prince Albert Victor and Prince George of Wales through Syria. Before these illustrious visitors doors that are usually closed flew open. And thus the Memoir is enriched with the plans of the heretofore inaccessible Sanctuary at Hebron, which were first drawn by Captain Conder, and appended to his report to the Prince of Wales on the visit of the Princes to the Holy Land,—a document which is reproduced in the third volume of the Memoirs.

The outer walls of this Sanctuary, which is regarded by the Moslem with even greater reverence than "the noble sanctuary" at Jerusalem itself, inclose a quadrangle measuring 197 ft. in length by 111 ft. in width externally. At the four angles are buttresses, 9 ft. wide on each face, and projecting 10 in. Between these there are eight buttresses on the end walls, and sixteen on the longer side walls, each measuring 3 ft. 9 in. in width, with intervals of 7 ft., and a projection of 10 in. All the buttresses are 25 ft. high, and they stand on a base wall which is flush with the face.

The masonry of this wall bears a very close resemblance to the older portions of that in the great wall of the noble sanctuary at Jerusalem. It may be truly called dressed megalithic work. The average height of the courses is 3 ft. 7 in., which is also that at Jerusalem. The largest stone seen measured 24 ft. 8 in. long by 3 ft. 8½ in. in height. That similar projecting buttresses were used at Jerusalem is proved by the discovery of two remaining *in situ* in the north-west angle of the Haram inclosure. Here, however, they were 4 ft. 6 in. wide, 8 ft. apart, and projecting 6 in. The thickness of the walls at Hebron is 8 ft. 6 in. between the buttresses, which is the thickness also of the corresponding wall at Jerusalem. The stones on the inner face of the wall are dressed plainly, without any draft. On the exterior the face of each stone (as at Jerusalem) is drafted on each of its four edges with a shallow and very carefully finished draft, generally about 4 in. wide, and recessed ½ in. from the face of the stone. The tooling of the draft is executed in precisely the same manner in each wall, an axe or fine-toothed instrument having been employed. A second band of similar tooling, about 4 in. wide, runs round the face of the stone, immediately within the draft, and the rest of the face is finished with a pointed tool struck by a mallet. The absolute identity of the character of the masonry in the walls of these two ancient sanctuaries is a feature of great importance, and one which points with tolerable certitude to a near identity of date, as far as the walls in question are concerned.

To the plans, sections, and sketches which Capt. Conder appended to his "Report on the Princes' Visit to the Holy Land," is added in the Memoir a view of the south-eastern angle and entrance to the Haram at Hebron, taken from a photograph. The Memoir is copiously illustrated by this kind of plate, on the value of which to the architectural student it is needless to insist. In the volume of the Memoirs which we have on the table, and of which we are now speaking, particular interest attaches to the views of the west door of the Church of St. John, Gaza, and of the interior of the same church, which is now used as a mosque. An extra or third aisle has been added by the Moslem, on the south, to this old twelfth-century church. The mihrab, or prayer niche, is at the east end of this aisle, but is skewed so as to point to Mecca. The style of ornamentation is very plain, and that of the architecture is severe, in the interior. The original total length was 108 ft. 6 in., internal measure. The nave is 21 ft. 6 in. in the clear, and each of the aisles is 13 ft. wide. The true bearing of the centre line is 109°. The nave has a clearstory, and a second order of pillars stand on the cornice, which runs round the piers above the capitals of the lower order of pillars. The upper pillars are almost of equal diameter with the lower, and have a heavy effect. All the pillars and cornices are well cut in hard dark grey marble, and the diagonal dressing is marked on the base blocks. The spans of the various bays are irregular, varying by about 1 ft.

The roof is entire, with groined vaulting; the windows and arches are pointed, but are broad in proportion to the rise of the arch. On one of the upper order of the pillars on the south side of the nave, on the pier nearest the east end of the church, is a curious design, representing the seven-branched candlestick in a wreath, with a tablet below bearing a Greek inscription.

The west door of this church is a beautiful specimen of the Italian Gothic of the twelfth century churches in Palestine, with delicately clustered shafts and pillars, and deeply undercut lily-leaves on the capitals. The church was dedicated to St. John the Baptist. Over the door of the court of the mosque is an inscription, including the name of Kalawûn, and the date 707 A.H.

The architectural student will delight to linger over the pages of this Memoir, exhaustive as it is of the topography, orography, hydrography, archæology, and architecture of Western Palestine.

The frontispiece to the third volume of the Memoirs is a coloured plate, containing reduced copies, drawn to scale by Captain Conder, of five very curious ancient *freschi*. Of these four are taken from a chapel on Jebel Kuruntul, a mountain which rises as a vertical precipice, 1,000 ft. above the level of the plain, near Jericho, which is shown on sheet xviii. of the 1-in. map. The precipice is burrowed with hermits' caves, and two chapels, one of which is still in use, are built against the rock. The reader is strongly reminded of the account given by Scott in the Talisman, of the residence of the Hermit of Engaddis, and of the mysterious adits and shafts connecting the cave with the chapel. The glamour of the great magician has been thrown over the scene, but it appears that there is some substratum for the account of the perforated mountain.

The lower chapel, on the side of the mountain, is reached through a hole in the roof of an excavated chamber, about 12 ft. or 15 ft. wide. There was formerly a staircase cut in the rock outside, but this is now broken away. The cemented walls of the chapel are covered with Mediæval *freschi*, adorned by the *graffiti* of numerous pilgrims. The eastern portion of the rock-cut chamber is raised, and there were originally windows on the south side. The altar stood on this elevated floor. On the left is a niche, probably for the *piscina*. On the walls are three compartments of coloured *freschi*. The centre represents a seated figure, in blue and red robes, with a red and gold nimbus. The circular-backed chair or throne is yellow; the ground is blue. Two circular discs are represented, one on either side of the head of the figure, over which is inscribed in bold uncial Greek, ΟΠΑΝΤΟ ΚΡΑΤΩΡ (the Creator). To the left is a much dilapidated figure of the Virgin, with the inscription, ΘΥ, the remains of ΜΗΤΗΡ ΘΕΟΥ (Mother of God), and to the right the upper part of a figure with an aureole, and hand (now black) stretched towards the centre compartment, with the title, Ο ΑΓΙΟΣ ΙΩΑΝΝΗΣ (the Holy John).

On the left of the altar, on a blue ground, is the figure, now black with age, of an angel in the attitude usually given to the Angel of the Annunciation. The legend is ΟΑΡΧ ΓΑΒΡΗΑ (the Archangel Gabriel). On the north wall to the left is the representation of St. Sabas extracting a thorn from the foot of the lion, the animal putting out its paw in the most trustful attitude. This serves, Captain Conder remarks, to date the paintings not earlier than A.D. 532, when St. Sabas died.

On p. 214, we find a description of another important pair of chapels, which form part of the ruin of a Mediæval monastery (on the same sheet of the map) at a place called Kusr Hajilah. The wall which surrounded it remains almost perfect on three sides, but is destroyed on the north. The measurements are 125 ft. east and west, and 163 ft. north and south. There is a projecting tower on the south and west walls, and smaller towers on the north and east. The south tower projects 9 ft., and was 17 ft. wide; that on the west is 14 ft. by 35 ft.

The principal chapel has a bearing 99° west. It has an apse with a domed roof on the east, the diameter 12 ft. 10 in., the depth from the chord 8 ft. to the back of the curve. On the south side were the remains of a staircase, leading to the walls above the apse. The second, or smaller chapel, was more perfect, having a sort of tower or octagonal lantern over the body of the building, supported by groined vaulting forming pendentives, the arches springing from the corners of the building. The chapel measured 9 ft. 6 in. across by 14 ft. long, interior measure. It had a door 2 ft. 5 in. wide on the west; a window, 2 ft. 8 in. wide, on the north; two windows, 2 ft. wide, on the south. On the east was the apse, equal in breadth to the chapel, but having two little apses within it; the northern, 5 ft. 2 in. in diameter, and 1 ft. 10 in. deep. The total height of the chapel was 16 ft.; the lantern above, on the interior, was a circle, 9 ft. in diameter, with four windows. It was 6 ft. high to the cornice, making a total 22 ft. from the floor. There is a vault, 10 ft. deep, below the chapel.

The nave of the main chapel was 44 ft. long, and the other dimensions are given with the same careful accuracy as those we have above cited. There is a very good ground plan of the whole group of buildings. The interior walls of both chapels were painted in fresco, the paintings, as in the former case, appearing to have been executed at two different periods. A descriptive account of these ancient portraitures is given, and the frontispiece contains a reduced coloured copy of the painting of the south-west pendentive, which represents three saints being robed by angels, probably emblematic of the resurrection. Over the upper figure is the legend ΟΣΙΜΩΝ (Simon). Among the figures of saints on the south wall the legends identify St. Andrew of Crete, St. John Eleëmon, Saint Sylvester, Pope of Rome, and Saint Sophronis, of Jerusalem. The name of Sylvester the Second, who was a famous Pope, brings down the dates of these inscriptions to about 998 A.D.

It is illustrative of the good service done in the survey and exploration of the Holy Land to cite a note appended by Captain Conder to the description of Kusr Hajilah:—"Visited 17th November, 1873, 1st January, 1875. Note. This place was revisited by me on 8th April, 1882. The Greek monks from Mar Saba were engaged in building a new monastery on the spot, and had deliberately scraped off all the frescos, not a vestige remaining. A better instance of the value of the survey work could hardly be given.—C. R. C." The visit here referred to is also mentioned on p. 29 of the "Report of the Princes' Visit to the Holy Land," where it is said that "this interesting monastery in the plains of Jericho was found to be undergoing repairs by the Russo-Greeks, after having remained nearly eight centuries in ruins. All the ancient frescos which adorned the walls of the two chapels within the precincts of the monastery have been entirely destroyed by the monks!

It is unnecessary for us to express any opinion as to the manner in which these records of the past have been rescued from a fast-impending oblivion by the conscientious work of the Royal Engineers who executed the survey of Palestine. We have but touched the fringe of a great subject. It is pretty clear that many dark spots will be illumined, many imperfect theories reduced to harmonious order, and our general view of the Eastern growth and development of Pointed Architecture very materially cleared up, by the records of the Crusading Architecture of Palestine. It will be a task of no ordinary interest to compare the "Synoptic View of the Building Epochs of the City of Jerusalem for 4,000 years," which we published in this journal on the 4th of January, 1868, with the "Notes on Architecture in Palestine," on p. 441 *et seq.*, of the third volume of the "Memoirs of the Survey of Western Palestine." The "characteristics" which, in that table, we indicated as matter for the attention of the officers of the survey, have proved, indeed, to be an anticipatory index of an amount of information such as, we should think, has rarely been collected in so brief a space of time, at once so new and so exact. Thus we indicated "excavated tombs" as a feature characterising Jewish work. The whole subject of Jewish tombs, with the curious *loculi*, arranged on two distinct plans, will be found reduced to system in the Memoirs. Again, the indications of date which we said would be given by the different types of megalithic and other masonry, have been followed out by something like an exhaustive account of the various massive styles adopted by Jewish, Moslem, and Christian builders. The "Arabic inscriptions," the "Christian inscriptions," the "Templars and Hospitallers' crosses," the records to be won from the "walls of churches and monasteries,"—all pointed out by us in that table,—might be taken almost, as we observed, for the table of contents of the Memoirs, so far as architecture is concerned. For the thorough and successful development of a plan of research from which much was to be anticipated, it would be difficult to find anything in more thorough accordance than was the "Synoptic View" given in the *Builder* in 1868, and the Memoirs of the survey published in 1882–3. And this is none the less remarkable from the fact that the two works were conducted by independent writers and explorers.

On one point the Survey of Moab, of which a popular account is, we hear, in preparation, will throw a light on a subject not anticipated by ourselves. We commenced our "Characteristics" by "Cyclopean Masonry." Under this, it is fair to state, we did not, fourteen years ago, include rude stone monuments. Nor have such been found in the Holy Land. But indications of their former existence there have been found. At one time these were quite unintelligible; but now, from the features of the numerous rude stone circles, cromlechs, and menhirs that have been found to the east of Jordan, they are perfectly plain. Thus, it was not due to the fact that none of these structures were erected in Western Palestine that none have been found within its borders. Sunken depressions in the live rock are found to accompany the dolmens and other rude stone relics in Moab. Similar depressions occur in Palestine, and are thus explained. There can be little doubt that they were intended for sacrificial purposes, connected with the worship associated with the rude stone monuments. Thus a new historic force is given to the record how "all Israel that were present threw down the high places and the altars out of all Judah and Benjamin, in Ephraim also, and Manasseh, until they had utterly destroyed them all." The high places of Baal Peor yet bristle with menhirs and dolmens. In the Holy Land not one, we believe, has been found. But the blood basins and channels, associated with the monuments to the East, are found in like spots to the west of Jordan. Can there be a more distinct proof of a great "cleansing of the land" from the idolatrous structures?

FOOD FOR THE MILLION.

OUR readers will have seen with satisfaction the mention of the opening of the new Central Fish Market in our last number, and, with us, will watch with some anxiety to see how so promising a plan actually works. We regard it as a good omen that the commencement of business actually got a start of the formal opening of the market. The arrivals of fish exceeded the anticipations formed for the first day's operations; and consignments from Brixham, Portsmouth, Hastings, Whitstable, and Grimsby were sold by auction at five a.m. The appointment of an official salesman, to whom fish can be consigned for sale by auction, and who will remit the proceeds to the consignors the same evening, is a boon to the centres of the fishing trade of which it seems to us hard to exaggerate the importance. We trust that when fish is thus sold in open market for prices that will not, we suppose, much exceed 1½d. per lb., it will prove impossible for this actual price to be multiplied, as at present, by some tenfold before the retail allotments get into the kettles of the purchasers.

It is further matter for satisfaction that at the meeting, on the same day, of the general committee of the International Fisheries Exhibition, preliminary to the opening of the exhibition itself, the royal and distinguished company were invited to partake of a luncheon, which was offered as a specimen of the cheap fish dinners which will be served in the cheap fish dining-room during the progress of the Exhibition at the moderate charge of 6d. a head. It was stated that the average cost of the fish served on this occasion, at Billingsgate, was 1¼d. per lb. This, it will be remembered, is the price at which we have repeatedly stated that fish could be delivered in London. It now lies with the public to give that support and sanction to the liberal action of the City authorities in opening the new Central Market, which shall make it a complete success. And that success, let it be remembered, consists in two elements; first, the fish supply of the market; and secondly, the free use by the public of the facilities which it affords them. This, it is important to remember, should be secured at once, before any organisation of middle men or other intermediaries has time to introduce, at Farringdon-street, the practices so loudly condemned at Billingsgate. The true test of the success of the new market will be the extent to which cheap fish now becomes a constant article of the diet of the poor.

A RECENT DECISION.

DELAYS WITH THE PROGRESS OF WORKS, AND ON THE FUNCTIONS OF ARCHITECTS AND ENGINEERS.

THE case of Lawson *v.* The Wallasey Local Board, reported in the 52 *Law Journal* Reports, p. 302, which is a decision of Justices Denman and Manisty, and which has since (on April 11) been upheld by the Court of Appeal, is one of considerable interest to all those who are connected with building and engineering works. Like many of this class of cases, it is complicated with various details, which render it somewhat less valuable as a guide on future occasions, because the next case of a similar kind may arise out of different facts, and principles enunciated may be difficult to apply under varying circumstances. The dispute arose out of a contract to excavate part of the bed of the river Mersey, contiguous to Seacombe Ferry, and the two main questions upon which the judgment of the Court turned were whether there was an implied contract by the Board that the contractor should not be delayed beyond a reasonable time by the non-removal of certain staging which obstructed his work, and next whether a dispute as to this was one within the jurisdiction of the engineer to decide. It will be necessary before commenting on the judgment of the Court to refer briefly to the facts of the matter.

As we have said, the work to be done was that of dredging a portion of the bed of the river Mersey, and one clause of the contract was to the effect that the contractor should complete the work by a certain date, "subject, however, to an extension of time in case the temporary staging now erected on the site of the work in connexion with a new ferry at Seacombe should not be removed within such a time as will enable the contractor to complete the work by the 1st day of October, 1878, in which case he is to be entitled to such an extension of time as the engineer may think reasonable." The clause then went on in the usual way to provide for the payment of penalties should the work not be completed within the original or the extended time. Clause 9 was as follows:—"If any difference shall arise between the Local Board and the contractor concerning the work hereby contracted for, or any part thereof, or concerning anything in connexion with this contract, such difference shall be referred to the engineer, and his decision thereon shall be final and binding on the Local Board and the contractor." A cardinal fact in the case was that this staging was not removed for a long time, and that the contractor was, therefore, for an equally long time, prevented from proceeding with the work, and the dredgers were kept idle on the spot; the delay, in fact, caused by the presence of the staging lasted, according to the contractor, for a space of 107 days. It is also necessary to notice that the engineer of the Local Board never, in so many words, extended the time for the completion of the contract, though more than once he stated to the contractor that the latter would be entitled to indulgence both in respect of the delay and his expenses incurred in consequence of it. It would be tedious as well as unnecessary to go through the correspondence which ensued between the contractor and the engineer. Suffice it to say, that the engineer certified for a smaller sum than that which the contractor demanded, and thereupon, as was natural, the contractor sued the Board for the balance. The two questions which we mentioned at the beginning of these remarks then had to be decided by the Queen's Bench Division on a case stated by an arbitrator. And we may state at once that the Court held that the contractor was

entitled to damages in respect of the delay. "Upon full consideration of the facts, we are of opinion that the plaintiff will be entitled to recover damages from the defendants if it should be established in evidence that the plaintiff was prevented from proceeding with the work owing to unreasonable delay in the removing of the staging, without the removal of which he could not proceed"; and subsequently the Court proceeded to say "there is an implied contract on the part of the defendants that the removal of the staging should not be unreasonably delayed." This decision, therefore, accords with the rule which is deduced from some other older cases in Roscoe's "Digest of Building Cases," 2nd edition, pp. 55 and 56, where it is stated that "the main principle is that a person cannot take advantage of the non-fulfilment of a condition which has been caused by himself." The rule is still more clearly formulated in the case of Roberts *v.* The Bury Commissioners, where it is stated that "a builder may bring an action against his employer for preventing the completion of the work, and thereby causing him damage." It is true that the circumstances of the recent case are different from those which have preceded it, but when it comes to be examined, this same rule is at the bottom of this as of previous decisions. But it seems to point out this also, namely, that even if the engineer had given some definite extension of time,—as a month, for example,—yet had the contractor suffered damage in consequence of the staging having been delayed for an unreasonable time, such unreasonable time being the month allowed by the engineer, that even in that case the Board would have been liable. It is obvious, therefore, that as regards interference with the operations of a contractor, the law is in a favourable state to him, and it is equally obvious that employers who, by any act of their own or their agents, delay the progress of works, do so at the peril of having to pay damages to the contractor.

To turn to the second point, which may be briefly disposed of, we will again quote some of the language of the judgment:—"We think that such a dispute [*i.e.*, a claim for damages caused by unreasonable delay] is not a difference concerning a thing connected with the contract. When the parties contracted they never contemplated that the engineer would have to decide any such dispute. It is one arising from a breach of an implied contract which is not part of or necessarily connected with the contract under seal." In order to bind to the certificate or decision of an architect or Local Board, it was possible to argue that Roberts *v.* the Bury Commissioners applied to the particular fact of that or similar cases. For the future it is clear that whenever a contractor has been delayed in his work from any cause over which the employer had influence or control, he has a full and unfettered right to sue the employer for damages. It is, perhaps, as well, however, to point out that it does not necessarily follow that the employer is the person ultimately to bear the loss. In the present case the staging was in the control of Messrs. Brassey, and consequently subject to special conditions of any contract. If the delay in the removal arose from the default of Messrs. Brassey they would be the persons finally to pay, as the employers could recover from them. This, again, is a rule applicable to all sorts of cases, so that it is obvious that the recent decision of the Queen's Bench Division, upheld as it has been by the Court of Appeal, is one of the first importance to large classes of persons and professional men.

New Public Fountain at Redditch.—Some three years ago, when the ornamental enclosure on the Church Green was formed by public subscription, Mr. R. S. Bartleet, J.P., promised that as soon as there were waterworks in the town he would erect in the enclosure a fountain, at a cost of 200*l*. The East Worcestershire Water Company having brought their works to Redditch, Mr. Bartleet lost no time in redeeming his promise, and consequently a fountain has been erected at the northern end of the enclosure. It was formally presented to the town on Tuesday afternoon. The fountain has been erected, from designs suggested by Mr. Bartlett, by the Coalbrookdale Company. It is surmounted by a female figure pouring water from a pitcher, from a design by Mr. Wills. There are three distinct sources of water supply.

FORM-BLINDNESS.

Of the reality and prevalence of the defect known as *colour*-blindness there can be no question. We are reminded of it in many ways,—disastrously when the pointsman, misreading the signals, shunts one train into another; grotesquely, as when a learned professor appeared before his startled pupils in scarlet hose, believing all the while that he had selected garments of a quiet academic grey (a true story); and painfully when the senile or immature artist dyes his canvas with those aniline compounds which chemical science has of late years placed within his too easy reach. Of form-blindness we have not such clear evidence, it is true, but that the sense of appreciating form is widely deficient is a fair inference from the facts before us, and as disclosed by the history of art. We can not only point to nations which have possessed a predominant sense of the beauties of form, a sense which has manifested itself throughout the entire range of their fine and household arts, or, on the other hand, can adduce instances where this sense has been notably deficient; but we can, in addition, follow and examine the growth and decline, and sometimes the eclipse of this sense in the same nation.

A broad example is at hand in the comparison of ancient and modern pottery, the pottery of comparatively savage races with that of civilised races, and the pottery and domestic art of ancient and modern Greece, of Etruria and Italy. Bishop Butler, in a well-known passage, speculated upon the possibility of whole nations losing their reason, and the result at which he arrived is not reassuring. It is certain that nations and races, once endowed with the gift of producing and enjoying the subtle charms of graceful lines, and harmonious forms, may lose not only the gift of production, but all sense of the artistic value of the objects they once admired. It will help us to realise the force of the proposition if we trace in a few words the history of art in Great Britain. A wider survey would enable us to state the case with greater persuasive strength, but the corroboration of experience would be wanting, and to many readers the illustrations so used must be taken on trust. But confining our observations to works within reach of examination, the truth of the theory we are advancing may be the more readily checked.

The arts of the Romans were an importation in a completely developed condition, and on the departure of the Roman legions were bequeathed to the conquered Britons. It is not very clear how far or for how long a time the processes which had been learned from their conquerors were put in practice by those who remained masters of the soil; but the vicissitudes of occupation and the ravages of the hordes who were continually sweeping down upon the country all but exterminating its inhabitants, were inimical, not only to the growth, but even to the conservation of the inherited arts. The Saxon had but little artistic excellence to impart, and it is not until the close and continued commerce with Normandy which formed a channel for the influx of the art of Byzantium that any marked advance in artistic execution or the appreciation of art is discoverable.

After the Conquest and the "Normanising" of the country, the art of architecture and the many subsidiary arts which clustered round it, such as those of the goldsmith, the ironsmith, the embroiderer, and the rest developed with an amazing rapidity. And that the aptitude of the recipients for art in all its forms was considerable is seen in the fact that an original style of architecture, unlike, in many details, anything on the neighbouring continent, speedily arose, clothed with a gracious and distinctive beauty; and this beauty was in its earlier stages a beauty entirely of form. Colour which, in later ages was profusely added to architectural works to heighten their effect, was only called in aid as a sort of condiment to give zest to a decaying taste.

A type of the supreme excellence of form without the adventitious aid of colour is found in the queen of English cathedrals,—Salisbury. It is there seen how little the modern colour is required to the satisfaction of the eye; how well content we could be to dispense with it altogether, blunted as our senses may be conceived to be in comparison with the acute perception and exquisite enjoyment of lovely form, which may fairly be credited to those who could evolve from the quarry such a dream of perfect beauty as the cathedral in question We must bear in mind that the feeling which this work evidences, a refined sense of the beauty of line and surface, and a severe self-restraint in the use of ornament was a note of all the art of the Early and Middle Thirteenth Century, and that the highest satisfaction of the mind and eye was sought and found in simple forms of exquisite proportion and delicate and refined grace of sparing ornamentation.

In passing on to the Transition period we see an impatience of the severe simplicity of the earlier manner; but the desire for ampler freedom of elaboration is still limited, as in the beautiful early tracery, to geometrical forms, and the windows and canopy work of this transition period show the influence of the reserve and reticence, a legacy of the masters of the preceding style.

Passing onwards to the Decorated period, we can but see that the skill of the architects is in many examples getting a little the better of their discretion. The *tours-de-force* which mark this style are the result of a consciousness of power in dealing with constructive difficulties rather than a delight in beauty. The profuse and indiscriminating use of certain ornamental features contrasts unfavourably with the sparing but effective use of carving and sculpture by the Early English architects, and the shrine and canopy work, exquisite though it be, is marked by an inconsequent and embarrassing mass of ornamental accessories, piled on and exaggerated in size in a despairing attempt to produce an effect which was attained without effort in the companion works of the preceding style. In the period which passes under the general title of "Perpendicular," although it embraces at least three manners, reliance upon form as an element of beauty is almost entirely abandoned. No one will say that the four-centred arch is as beautiful as the lancet form, and no one, we should suppose, would deny that amongst four-centred arches those at Winchester, for example, are not only not beautiful, but go far towards being fairly called ugly. The style has its merits no doubt. It brought back a feeling for height and proportion which had been declining since the works of the early part of the thirteenth century, but beyond the beauty of that architectural "happy thought" the fan-tracery,—a beauty which would redeem the character of any age, the beauty of pure unassisted form was not sought after nor enjoyed. The "pride of life" and not "man's delight in God's work" differentiates this, in many ways, remarkable epoch.

The blight which speedily fell upon the art, after the problems which the fourteenth and fifteenth century architects had set themselves had been worked out to their solution, has been often told. And it is impossible to believe that if the nation at large, or the artists in especial, had preserved intact that fine sense of proportion, and the religion, one might almost say, which lives in lovely lines,—a sense which was at one time the happy possession of their fathers,—that they could have endured the coarseness and grotesquerie of the manner which soon came in vogue. And thus it is seen that by a steady decline, distinctly traceable, one of the most precious of artistic gifts had dwindled away, and the whole nation had, artistically speaking, in this respect lost their reason. Worse, however, was behind, and a worship of the ugly set in which can only be compared to some form of demoniacal possession. There is something not only sad, but shocking, in the persistence with which the caricaturists of a quite recent age dwelt upon and gloated over every form of human depravity,—mental and physical. They appear to have had no eyes for anything but what was to the last degree repulsive. Natural scenery was represented, or misrepresented, by them in a way which showed that its beauties were a dead letter, and if amongst the hideous masks which they uniformly placed upon human shoulders in their works an attempt to represent attractively the "human face divine" was made, it was only to cast a deeper stain of moral degradation over the whole. As these prints were addressed to and found favour with the nation at large, we may assume that they were enjoyed, or at any rate did not disgust the public who supported the "artists" by their patronage.

While the nation was thus "possessed," we know to what condition the arts in general had fallen. Contemporary prints and contemporary literature let us into some portions of the truth

as to the desecration to which the loveliest efforts of human genius,—the churches and cathedrals of our land,—were subjected, and we have before our eyes evidences of the hideous structures which were raised, not without complacency and mutual congratulations, by the descendants of the men who built Ely, York, and Salisbury.

We have, thanks mainly to a few earnest and religious minds, done much to bring the nation round to a condition of sanity in the matter of form, and to exorcise the demon which had for so long possessed the public mind. But the process of complete recovery will, in all probability, be slow and partial. There are happily abundant signs of a growing delight in the simple beauty of natural scenery and a growing ability to appreciate architecture of a severe and refined character, unassisted by garish adjuncts, and although it may be doubted whether among particular classes,—still too numerous,—there is any real power of discrimination between beauty and ugliness, grace and ungrace, yet it is not beyond a reasonable hope that the nation may regain its ancient gift and that "form-blindness" may cease to be a misfortune and a reproach.

MODELS.

AN esteemed contemporary has lately described with felicitous accuracy "an artists' quarter" in Paris, a well-known artistic *restaurant* in the neighbourhood of the Batignolles. For those familiar with the incidents so well narrated, it is impossible not to recognise the faithfulness of the relation, while to those at a distance, acquainted with the details only through such literary descriptions of the life of foreign artists, a fresh incentive may perhaps be added, if any were needed, to the interest in foreign art which just now appears to be engrossing an almost over-abundance of our attention. The description of the artists' quarter, so ably brought before us in the *Pall-Mall Gazette*, shows us a state of society that is alone to be met with in Paris, the pleasant *cameraderie* of the French artist's life. It is true the old *Lèpre*, the artists' dining-place in Rome, possessed in the Papal days some resemblance to the Batignoles *restaurant*, with this exception, that it was less exclusively devoted to painters than the Paris eating-house, and the model element was certainly absent, except, perhaps, on the Sundays and the *festa* days. It would seem, indeed, alone in Paris that the familiar understanding between the painter and his model can exist with anything like a correct and allowable propriety, and when we compare the thoroughly-understood position of the painter in Paris, and the perfect appreciation of the usefulness of the professional model, the willing admission by the painter of his utter inability to create his production without the assistance of the living example, obedient and humble-minded enough to give up days and years for a small remuneration; when we compare this understanding that exists between the French artist and his model with the far greater distance which exists between the painter and his model in England, perhaps it is not unreasonable to trace in it something of the deficiency in the life and vivacity of our painters' work, as compared with that which exists in the French capital.

Conventionally and sentimentally we in England are all disposed to acknowledge the value of what is understood as a model, and no term is perhaps more constantly made use of at our almost too frequent picture exhibitions than the term "lovely," "hideous," or "charming model," and artists are envied or derided according to the supposed want of skill in their choice of examples. Most people are aware that something or somebody to copy into the painter's picture is an absolute necessity, notwithstanding the existence of a famous old story which has been repeated so often that it has at length come to be believed, but which, in point of fact, is altogether founded on error, that Guido, the Bolognese painter, in his attempt to realise what the world has rather hastily acknowledged as the realisation of perfect beauty, used, by preference, as the model for the loveliness of his Madonnas, his aged but obedient housekeeper. In our day, not only in Paris but in London, whenever the housekeeper, whether aged or not, was to be made use of as a model, it would be simply if the painter had the duty or was prompted by the pleasure of painting a housekeeper, and as such, according to the accepted type, she would be regarded as a fit subject.

So far the painter of the present day may indeed be considered intellectually as the superior of the painter of the past, who too often in this direction regarded with indifference what we now understand as realistic truth; at the same time it must not be forgotten that in the most poetical and ideal art of the past there is often shown a singular attempt, and sometimes with the utmost success, to realise in absolute perfection of imitation the most commonplace objects and incidents.

English artists complain more and more of the difficulty they find in obtaining appropriate models, and perhaps no more pernicious substitute is to be found than in that would-be aid which artists believe they obtain from the unprofessional model who from kindness, often perhaps from vanity, offers to "stand" or "sit" for certain characters, for which the painter believes his friend exactly "suited." We remember an eminent living painter once telling us that it required two people to make a good portrait; the painter who has his work to do, and the sitter who must also aid by being absolutely quiet and silent, a task sufficiently difficult to test the patience of most of us; perhaps a duty more difficult and more rare than the skill of the painter.

Reynolds has more than once been suspected of having exaggerated his historic deafness in order that he might enforce on his sitters that silence so conducive to the absorption of mind from which is produced the greatest work of the artist, be he painter, sculptor, writer, or musician. There are, doubtless, still living,—there certainly were not so many years back,—more than one of Lawrence's sitters who could recall as the feature of their sitting to the President, the monotonous sound of the painter walking backwards and forwards from his easel to the distance at which the artist's eye is able to "take in" his picture as a whole. The great portraits of the past, the stout solid burghers of Rembrandt, the proud patricians of Velasquez, the calm thoughtful heads of Vandyke and Rubens, the reflective portraits of Titian, and the life-like vivacity of Holbein's panels, how could these have ever been produced had not the sitters understood that as their share of the work silence was an absolute necessity? The observant eye can easily detect the depth of reflection in which the painter has caught the sitter as he sat wrapped in his own thoughts. The traditions of the art of sitting seem to have died out; brother painters understand the exigencies and the seriousness of the matter, and can give, when required, that hour or two of steady immobility which was productive of such masterpieces in the past. There are again certain sitters who, knowing that in the sculptor's studio one is not required to keep still, forget the very different circumstances of the case in the painter's studio, the consideration on the part of the sculptor of at least those seven views of the figure which Benvenuto Cellini laid it down as necessary to study closely, while the painter has to produce his effect of rotundity on a flat surface, and hence the necessity of the sitter remaining as far as possible during the sitting in the one position determined upon.

If, therefore, the experienced portrait-painter requires that his sitter should be absolutely quiet during the sitting, how much more necessary must it be for the model who sits to the painter in an attitude very often constrained and irksome. Hence the value that the artist attaches to and, the friendship he feels for, the accomplished model who occasionally is absolutely beautiful in his eyes owing to a thousand resemblances he perceives in the living nature before him, to his recollection of the almost divine inspirations of the great artists of the past.

There is a good *atelier* story told of the great French painter, Ingres, who while at work one day was asked by a poor and by no means well-favoured model to be allowed to sit for the nude on which he was engaged. Ingres, whose warm and generous heart was ever open to such appeals, agreed, and without even turning away from his work asked the model to strip; as he glanced round, and saw the nude figure before him, the tears started into his eyes at the perfection of what he beheld. That is the spirit in which the true artist admires the suggestive beauty of the well-proportioned human form,—as we well remember M. Taine, in one of his lectures, impressing on the students of the École des Beaux Arts, to whom he had told this anecdote as illustrative of the gratitude of the artist to the model who enables him through the long stretch of ages to enter into momentary communion with what Raffaelle once so piously termed "those divine souls of antiquity."

THE USPENSKY CATHEDRAL AT MOSCOW.

THIS ancient church is now invested with a renewed interest, from the fact of its being the scene of the coronation of the Czars of Russia. According to the *Vossische Zeitung* of Berlin, the church, which is under the title of the Assumption of the Virgin (*Uspensky—Soborr*), is situated in an open space, and by its architectural features exhibits a striking contrast to the buildings in the same part of Moscow, which, as a rule, are of Italian design. There is nothing very remarkable in the size or construction of the church, which was built by Iwan the Great, the founder of the Russian Czardom in the latter portion of the fifteenth century, shortly after his marriage with his consort Sophia, through whom he became, to a certain extent, the inheritor of the Byzantine imperial dignity. During two centuries all the buildings of note in that part of Europe had been erected by Italian or German architects and workmen, but Iwan attempted to complete the building with Russian labour. His patriotic scheme was, however, unsuccessful. Within a year the masonry which had been laid had to be taken down, and the Venetian architect, Aristotle Fioraventi, undertook the direction of the work, which was completed under his supervision in 1479. He brought with him Italian workmen, and spread much useful knowledge in the country. Amongst other branches of industry he improved the manufacture of bricks, and diffused more sound principles as to masonry than had hitherto been current in Russia.

The Assumption Church has come down to modern times in a fair state of preservation, the only restorations of note made having been the renewing of the vaulted roofing of the nave and the strengthening of the exterior walls by means of buttresses. Its design can hardly be described as partaking of the usual features of Russian ecclesiastical architecture, but rather as closely resembling the examples of the Byzantine school, which have been preserved. The portion of the church intended for the worshippers is square, and the sanctuary, as well as the four projecting chapels, is semicircular. The external aspect of the building is that of a rectangular structure with five richly gilded domes surmounting the chapels and sanctuary to which reference has been made. The south façade is ornamented above the doorway with a colossal statue of the Virgin, but is in other respects of a simple character. The east side contains representations of various incidents appropriate to the title of the church, and the architectural ornamentation is of an effective kind. The principal entrance leads from the west side to the nave, and has a small projecting structure in front, the exterior of which is ornamented with paintings on gold ground of the Russian patriarchs, Peter and Sergius, the body of the former being interred in the church. The interior of the church is also decorated in the richest manner with figurative ornamentation. The decorations of the screen which divides the sanctuary from the body of the church is singularly rich. It displays in five rows the leading personages in sacred history down to the coming of Christ. The twelve principal festivals of the year are then represented, and finally the Christian Church with Christ, the Virgin, John the Baptist, and the twelve apostles. The church is rich in ecclesiastical vessels of different kinds. The throne used by the Czars of Russia during the Coronation ceremony dates from the year 1551, and is richly decorated.

The entire superficial area of the church is about 5,400 square feet, but on account of the arrangement of the interior, there is not accommodation for more than 600 or 700 persons. It is this fact which caused the proposal to be brought forward that the coronation of the present Czar should take place in the New Church of the Redeemer, which can hold 5,000 persons. This church, which was erected in memory of the deliverance of Russia from the French invasion, has only now been completed, and the ceremonial would really have been a dedicatory festival.

THE MASONRY AND CARPENTRY OF THE GREEKS AND ROMANS.

PROFESSOR C. T. NEWTON, C.B., delivered the fourth of a course of eight lectures* on the useful and decorative arts of the Greeks and Romans, on Friday, the 11th inst., taking as his subject "Masonry and Carpentry." He observed that in the present lecture he had to deal with two of the most useful arts,—arts which enabled people to obtain shelter from the weather, viz., the arts or handicrafts of masonry and carpentry. Those arts, as he need hardly say, were closely connected with architecture on the one hand, and with purely decorative work on the other. In the first instance he desired to say a word or two as to the condition of artisans generally in Greece, and as to the estimation in which artisans were held. In the poems of Homer the few artisans or skilled workmen who were noticed at all were put rather prominently forward, as if they were highly esteemed in their several crafts. We found mentioned by name several craftsmen, such as workers in metal and workers in wood. The lecturer was not aware, however, that any masons were mentioned by name in the Homeric poems; but Paris was described as building his own house with the assistance of masons, while the walls of Troy were believed by the ancients to have been built by two of the gods, and it was recorded that a disagreement about this work was the original cause of the quarrel between the Trojan dynasty and some of the gods, for it was contended that the two gods who built the walls were not paid their proper wages. We obtained in Homer the idea that the craftsman was a man very necessary to the community, and that he was regarded more or less as a *demiurgos*, or public servant, just as the physician in those days was a public servant who undertook to look after the health of the army. Of course it was to be concluded that in an heroic age such as Homer described the craftsmen would be very few in number, although their services would be very necessary. It was remarkable that Ulysses himself took rank as a carpenter, for Homer described how the king made his own bedstead, which was spoken of as being inlaid with ivory and other ornament, and supported by the stem of an olive-tree. Intracing the history of the Greeks down from the Homeric age to, say, the time of Pericles, we found in Attic writers of the period a fine distinction drawn between the craftsman and the full citizen, *i.e.*, the citizen who enjoyed the fullest privileges. The full citizen was a member of the Athenian public who was not only endowed with great privileges, but he had to fulfil certain high and imperative duties, such, for instance, as taking part in the defence of his country, and to prepare himself for this particular work by carrying on his gymnastic exercises. On the other hand, the man who was perpetually working at his trade could hardly be said to take any part in public affairs, or to have any forensic life. He stood at his stall and worked at his trade while those who were not obliged to maintain themselves by working as craftsmen took part in the public assembly. Probably in the greater number of cases the craftsmen or skilled workmen were not full citizens. They were either slaves or strangers whom the Greeks allowed to live in Athens and practise their callings, but without giving them the privileges of citizenship. The extensive works which were going on in the Periclean age naturally attracted large numbers of these foreign workmen, including both masons and carpenters. The trades followed by these artificers descended from father to son, but the hereditary transmission of trades was not so exclusive as to involve anything like caste, neither did we find that marked tendency to form corporations or guilds of craftsmen which we saw in Roman times, and which went on throughout the Middle Ages. Proceeding with the immediate subject of his lecture, Professor Newton said that unfortunately there was very little to be found in Greek or Roman writings as to masons and carpenters. He presumed that the German works which dealt with trades and crafts had brought together every passage from the ancient authors that could throw any light upon the subject. Such passages, however, were very scanty and meagre. There were, however, other sources of information, as in the monuments themselves. From the writings of Homer it was quite clear that there must have been workmen at a comparatively early period, capable of making the structures of polished marble, and the furniture, which were described by the poet. That the Homeric descriptions were trustworthy had been proved by the researches of Dr. Schliemann, whose discovery of the Cyclopean walls of Mycenæ and of the neighbouring fortress of Tiryns afforded a remarkable confirmation of some of the poet's statements. Cyclopean walls of this character were noticed by Pausanias as being regarded, in his time, as of remote antiquity. They derived their name from the belief of the ancients that they were built by the Cyclopes, a one-eyed race of beings of gigantic stature. These walls were really specimens of military architecture, those at Tiryns being as much as 27 ft. in thickness. Such walls generally contained internal covered galleries within their thickness, with loopholes from which to take aim at an enemy. Pausanias said of the blocks of stone of which the walls of Tiryns were built that there were none so small as to be conveyed by less than a pair of mules. He described stones 10 ft. and 12 ft. long throughout these walls, and the immense size of the blocks had been urged as proof of the great age of the walls. Modern writers on prehistoric man had invented the word "megalithic," and spoke of the "megalithic period" as that during which structures like Stonehenge and the walls of Tiryns were built. The lecturer thought it very probable that the earliest walls built in Greece were composed of very large stones. But on examining the examples of Cyclopean Pelasgic or other early masonry extant, it would be found that they were of two kinds, first of all those in which rectangular blocks of stone were used, laid in regular courses, though somewhat irregularly; and secondly, those which were of what might be called polygonal masonry, which was composed of stones with many sides and with many angles. At Mycenæ both kinds of masonry existed, and in both kinds the enormous size of the blocks was apparent. To convey those huge blocks up mountain sides, and to place them upon their proper beds must have been a very difficult operation mechanically, especially in times when, it might be assumed, the art of road-making was not much understood. The large blocks were often found fitted together imperfectly, leaving instertices in which other and smaller blocks were fitted. Walls of this character were regarded by Dr. Schliemann as belonging to the earliest period. After this early period of imperfect joints or interstitial stones, we came to a later kind of masonry, in which the blocks were carefully and solidly fitted together, so that the wall presented a perfect face. With this, however, there was a diminution in the size of the blocks. The polygonal masonry of the Greeks no doubt owed its distinguishing characteristic to the application of the law of cleavage, with which the Greeks must have been familiar. The lecturer said he referred to these points because they had an immediate bearing on the question of the age of the things discovered by Dr. Schliemann at Mycenæ and Tiryns, and at Orchomenos in Bœotia. He (Professor Newton) had ventured to ascribe those antiquities to a very early time,—as early as the year 1200 B.C. It might be said that it was only arguing in a circle to say that because at Mycenæ and Tiryns there were specimens of very old masonry, therefore the things found by Dr. Schliemann were old; but the lecturer contended that the opinion of the ancients themselves was worth a great deal, for they had a range of observation over deserted and ruined cities which we never possessed. But those of his hearers who cared to pursue the question would find it very ably discussed from the negative side in an excellent dissertation on the subject in the fifth volume of the "Classical Museum," by Mr. Bunbury. In the later period of masonry the chisel was very skilfully used. In the harbour of Cnidos are the remains of a mole, the blocks of stone composing which, the lecturer believed, from his personal observation, to have been fitted together in the same way as the walls of Mycenæ and Tiryns. When he (the lecturer) was at Cnidos, he was accompanied by an engineer, who assured him that one block on the top of the mole weighed at least 50 tons. To get such an enormous block into position with the simple mechanical means which the ancients had at command was no small undertaking. They had no hydraulic jacks, no steam power, but only such simple appliances as the pulley and wheel. Coming to the masons' workmanship exhibited in Greek architecture of the best period, the lecturer observed that the perfection of the joints was a marvel to behold, even at the present day. In building up a column composed of a number of blocks of marble or stone, the problem was how to place each drum, weighing perhaps, 2 tons or 3 tons, upon the bed prepared for it, with absolute exactitude; another problem was how to place in position a piece of architrave, say 18 ft. long (for such dimensions were adopted) without injuring it at the edge? Such feats were accomplished by the Greeks, and wherever one looked, whether at Athens, at Priene, or at any other of the sites famous for temples or other buildings, the fragments of architecture which remained exhibited the same beautiful perfection of the joints, called by the Greeks *harmos*. On careful examination of these joints it would be found that the outer edges or margins of the surfaces which were to come in contact were polished. These polished margins inclosed the rougher surfaces of the stones, which were sunk a little so as to allow the polished surfaces to come close together. Illustrations of this were to be seen in the British Museum in the marble tiles from the Temple of Artemis at Athens. Mr. Penrose, in his valuable work on the Parthenon, referring to the accuracy of the joints, expressed his inability to tell how the builders could have got the joints so perfectly true, but he suggested that a pin or pivot was fixed in the lower of two drums and a hole to receive the pivot made in the lower surface of the uppermost of the two drums, which was made to revolve upon the lower drum, and so grind the surfaces true. But, whatever might be said in favour of that theory, it obviously would not explain how the Greeks managed to get such perfection of jointing in such features as architraves, &c. Since Mr. Penrose's book had been published, an important inscription, in the shape of an order or law giving directions as to the construction of a temple, had been discovered. This inscription was really the architect's specification, and in it the point was very strongly insisted upon all through that every block of stone used for the temple should be prepared and dressed in a particular manner, and be subject to the approval of the surveyor appointed by the city. Constant reference was made in this specification to the polishing of the joints by the application of vermilion and a particular sort of oil to the surfaces of the joints. Although that inscription had been published in Germany by Fabritius, he had not, so far as the lecturer knew, proposed any explanation of that combination of oil and vermilion. A very interesting translation of the inscription was published in the *Builder* a few years ago,* probably written by Mr. Watkiss Lloyd, who was a very ingenious commentator upon Greek architecture. The writer threw out the hint that the vermilion was used for the purpose of ascertaining whether the two surfaces of marble, which were to be contiguous, were perfect planes. The mode of application was this,—Taking two drums of columns, which had to fit truly together, if one of the intended contiguous surfaces were covered with some conspicuous wet colour, with which the other contiguous surface were brought in contact by placing the stones one above another in their intended position, it would be readily apparent on separating the stones whether there were any inequalities in their contiguous surfaces. A similar process of working was followed, he found, by masons in the present day, so that here was an illustration of a method of work, probably invented by the Greeks, coming down to the present time from generation to generation of masons. The Greek builders used no mortar, but where the work was of the best character they used cramps either of stone or copper dovetailed into the work. The copper so used being of cousiderable value, there was no doubt that many ancient buildings had been ruined simply for the sake of obtaining the copper cramps. It was difficult to arrive at any conclusion as to the rate of wages paid to Greek masons, inasmuch as the evidence afforded by inscriptions, &c., did not throw any light on the question whether the rates mentioned included food and lodging. Proceeding to speak of Roman

* For report of the first lecture of this course, on "Mines and Metals," see p. 566, *ante*.

* See *Builder*, vol. xxxv. (1877), pp. 363, 413.

masonry, the lecturer alluded to the way in which the Romans used brick and rubble as a backing or filling-in to their masonry. Their mortar was of very great strength, due to the fact that in its composition they used *pozzuolana*, an earth found near Puteoli. The Romans built walls of brick, sometimes laid in regular courses, sometimes in a kind of *opus reticulatum*, contenting themselves with a mere veneering of marble or stone. With regard to the carpenters' work of the Greeks and Romans, there was very little that could be said, for hardly any of their woodwork had come down to us. It was evident, however, from passages in Homer's works, that even in the times of the poet there must have existed some very good specimens of inlaid woodwork, prototypes of that of which we saw representations on the earliest vases and on various ancient monuments. In the Archaic Greek room at the British Museum there were some chairs which were more elegant in form and more honest in construction than some modern chairs, for they were constructed with mortise-and-tenon joints. The Greeks were certainly acquainted with glue from the time of Homer, but, wiser than modern furniture-makers, they preferred to use the mortise and tenon. With regard to the coarser work of the carpenter, such as that required for the roofs of buildings, a good idea of it was to be gained from the roofs of the Etruscan tombs, many of which had been carved in the rock in evident imitation of timber structures.

ULM CATHEDRAL.

ON two previous occasions * we have given views of this remarkable building, at which restorers are now actively at work. With this issue we present our readers with a large view of the exterior of the cathedral as it will appear when completed.† A *résumé* of the history of the building, as well as a brief reference to the work of restoration, has already appeared in these columns. We shall, therefore, confine ourselves on this occasion to particulars interesting, in the first place, to the archæologist and the church historian, but at the same time of interest to the general reader. For the present cathedral has a history which reaches far beyond its foundation. The building which was the predecessor of the relatively modern edifice was the parish church of the district, and was known to the old Ulmers as the Church of Our Lady. When they laid the foundation for what is now the cathedral, they intended it to take the place of their old parish church. That old church, which was at the same time a Lady-chapel, stood in a depression of the ground formed by a diversion of the course of the river Blau, not far from an old Alemannic burial-ground outside the old as well as the more modern wall of the city. It is stated to have been a wooden building, dating from the seventh century, and was probably the mother-church of the district, the cradle of Christianity in that part of the country. Even at the present day, in that district, fragments of decayed timber (called Olm) are found in excavations, and local archæologists are of opinion that the name of Ulm may have been derived from the fact of that occurrence.

A great portion of the soil belonged to the church in question, which levied a tithe; and when the Alemannic estates, on which the church lands bordered, became a Frankish palatinate, and the kings, in order to strengthen their position, divided the inheritance with the Benedictines of the neighbouring powerful abbey of Reichenau, and the latter founded a settlement close by at the so-called Grüne Hof on the Pfalz, the parish church was probably placed under the patronage of the abbey. This connexion not only insured to it its estates, but also placed it under the ægis of the order, one of whose principles was that real civilisation could only be advanced by cultivating a taste for art. When it is, therefore, said of the old parish church by the chronicler Felix Fabri that, according to native tradition, it was a valuable building of ashlar stone, and that its like was not to be found in the whole of Swabia, the probabilities are that the abbots, Hatto and Witigowo, of Reichenau, in the ninth and tenth centuries, exerted a great influence upon its erection. But exterior as well as interior causes brought about in course of time a separation from Reichenau. The rupture between church and state under the last Salians and the Staufen emperors, the growth of trade and industry after the crusades and pilgrimages to Rome, the immigration of freemen from the country, and the restriction of the privileges of the nobility led also at Ulm to the development of a new principle, burgherdom. This change brought in its turn another. It became necessary to provide against attack from without, and the town was walled in.

In 1134, the city was taken by Duke Henry of Bavaria, the son-in-law of Lothar, and almost entirely destroyed. But under the ducal emperors of the Swabian house, the city arose from its ashes with wonderful rapidity, extended its outer walls, rose to the rank of a fortified post and an important centre of trade, conquered step by step, both by prudence and valiance, during the troubles of the Interregnum, the position of an imperial city, and overcame by public spirit the interior struggles between families and guilds, under the sceptre of Ludwig of Bavaria, the German king who, along with Charles the Great and the new founder of the city, Conrad von Staufen, lived most in the hearts of the Ulm citizens. The powerful influence which the Church had exercised, especially under the emperors of the house of Saxony, upon the State was succeeded by a reaction of the latter upon the former. A reformed, later a new monasticism began to counteract the secularisation into which the Benedictine order had degenerated. The superiors of Reichenau, who had been used to hold their court in Ulm as prince-abbots, and to waste their revenues, themselves admitted the Cistercians of Salem, Kaiserheim, and Bebenhausen, the brothers and sisters of the Order of St. Francis, and the Dominicans. The new orders did homage to the democratic tendency of the time, were severe upon pride and luxury, were the friends of the burghers, settled down among them, and taught them the new style of building,—Gothic,—in the sober spirit which corresponded to their whole intuition.

A witness of this style in its earlier character was partly the Franciscan church, called popularly the "Kirchle," which was taken down a few years ago, the western portion of which rested upon the old city wall. In 1239, the Minorite brother, Master Albert, built the convent of the order, dedicated to St. Damian, at Ulm. A year later, the citizens founded at the Upper Danube bridge the Hospital of the Holy Ghost. In 1271, mention is made of a citizen's house, the Steinhaus of Heinrich Racgilin, near the market-place. The monastery of the Dominicans may have been built in the ninth decade of the same century, the remnant of which, the choir of the present Trinity Church, preserves in the tomb-stone of Otto am Steg, a favourite of Emperor Rudolph, the oldest identified stone monument of Ulm (1298). In 1286 we find the first documentary trace of building operations at the old parish church in a letter of indulgence granted to those who contributed towards its building or decoration fund. The work was carried on by the city, as a document of 1271 proves, in which the chief magistrate, Otto by name, the town councillors, and the burghers of Ulm call the parish church their parish church. It is probable that a municipal building committee existed long before that time. In 1292, a master of stonemasons, under the name of C., is first mentioned, as the master of a guild, at the head of a list of Ulm guild-masters. In 1348, the founder of Prague Cathedral, and so many other German monumental edifices, Charles IV., stayed at Ulm, when he granted to the citizens the privilege called the "Judenschutz," the revenues derived from which were expended in beautifying the town. The first mention of the merchants' hall, later the town-hall, occurs in 1360.

But the parish church was still outside the city walls. The abbots of Reichenau had even contrived in 1327 to incorporate it with their abbey, and placed a vicar there, who derived from the revenues only the portion necessary for his maintenance and the payment of the fees due to the Bishop of Constanz. The monk masters of Reichenau would not even bear the cost of repairs, leaving this care still to a municipal board and pious founders. The citizens of Ulm had obtained in 1300 of King Albrecht the privilege of levying taxes on all lands hitherto liable, even if they had been left to the clergy. They felt they had the power to sever the unnatural connexion with the abbots, demanded permission to transplant their parish church into the city, and obtained it. It was the time of the battles of Altheim, Reutlingen, Döffingen, when the Ulmers destroyed in one year eight castles of the nobility, which had been thorns in their sides, and successfully resisted a siege by the emperor. Charles had pitched his camp in the first days of October, 1376, at Elchingen. An old popular ditty says it had been told him that "Ulm would only be a morning meal to him." He was compelled to do without his breakfast, and to draw off from the cage containing the spiteful birds. As later in the Princes' War, the Ulmers levelled every building outside their walls that might serve as a shelter for the enemy, so determined were they in their resistance. Thus, the resolve to transplant the parish church into the city, or, rather, to build their cathedral, was, in the first place, suggested by political and military considerations.

The history of the present cathedral has been already given in our pages, and we need, therefore, say no more on that point just now.

* See pp. 173, 208, *ante*. (Feb. 10 and 17).

† The west tower of the completed Ulm Cathedral will rise to a height of 161 mètres (495 ft.); those at Cologne are only 148 mètres high. The Ulm tower is at present only 334 ft. high.

MARKET HALL, NEWARK.

AMONG the illustrations in our present issue will be found a perspective view of the interior of this proposed building, designed by Messrs. Saville & Son, and submitted in the recent competition, in which Mr. Bell's designs were assigned the first place. The hall, which is about 108 ft. long by 54 ft. wide, is simple in arrangement, and can be understood at once from the drawing. The entrance is gained by means of three large gateways, occupying the greater part of the frontage; the three doorways shown in the view at the opposite end were intended to afford access to the existing Town Hall, and correspond in shape and position to the present doorways in the Town Hall wall. The shops are 10 ft. 6 in. square, are thirty-two in number, and are ranged in two stories along the sides of the market, the central portion being left for portable stalls and gangways. The main roof is arranged to be constructed partly of wood and partly of iron, and to spring from iron columns fixed at the front ends of the divisions between the shops.

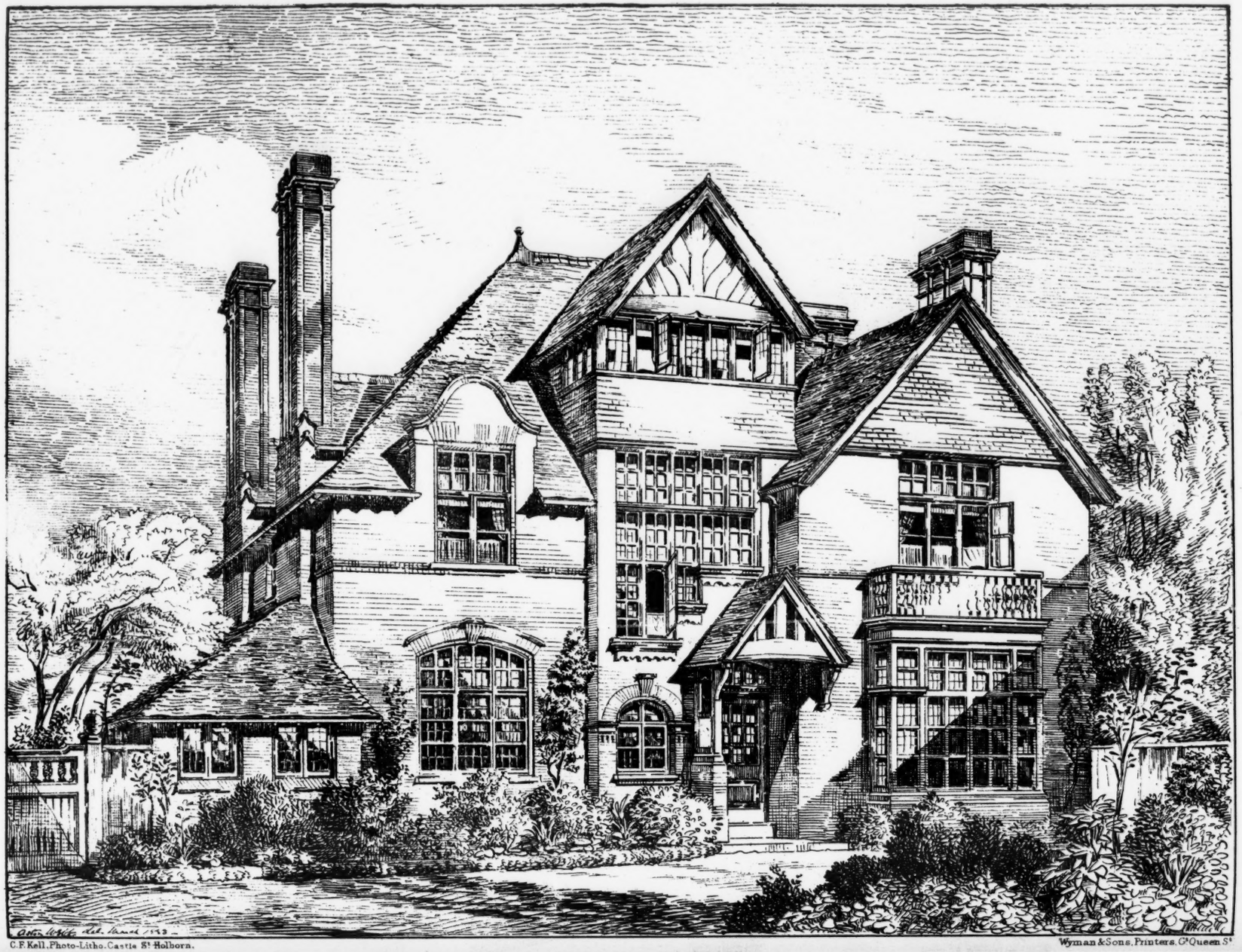
A COUNTRY HOUSE, BROMLEY.

THIS house has been built for Mr. C. F. Selby on the Southill Park Estate, Bromley, and contains, on the ground-floor, dining-room, 21 ft. by 15 ft.; drawing-room, 21 ft. by 15 ft.; billiard-room, 22 ft. by 17 ft.; kitchen, and good offices, with seven bedrooms and dressing and bath room over. The walls are built hollow on the exposed sides, and the roof is covered with Broseley tiles.

The builder was Mr. T. Crossley, of Bromley, the internal plumbing being carried out by Messrs. Dent & Hellyer. Mr. Aston Webb, of 19, Queen Anne's Gate, was the architect.

The drawing from which our illustration is taken is now at the Royal Academy.

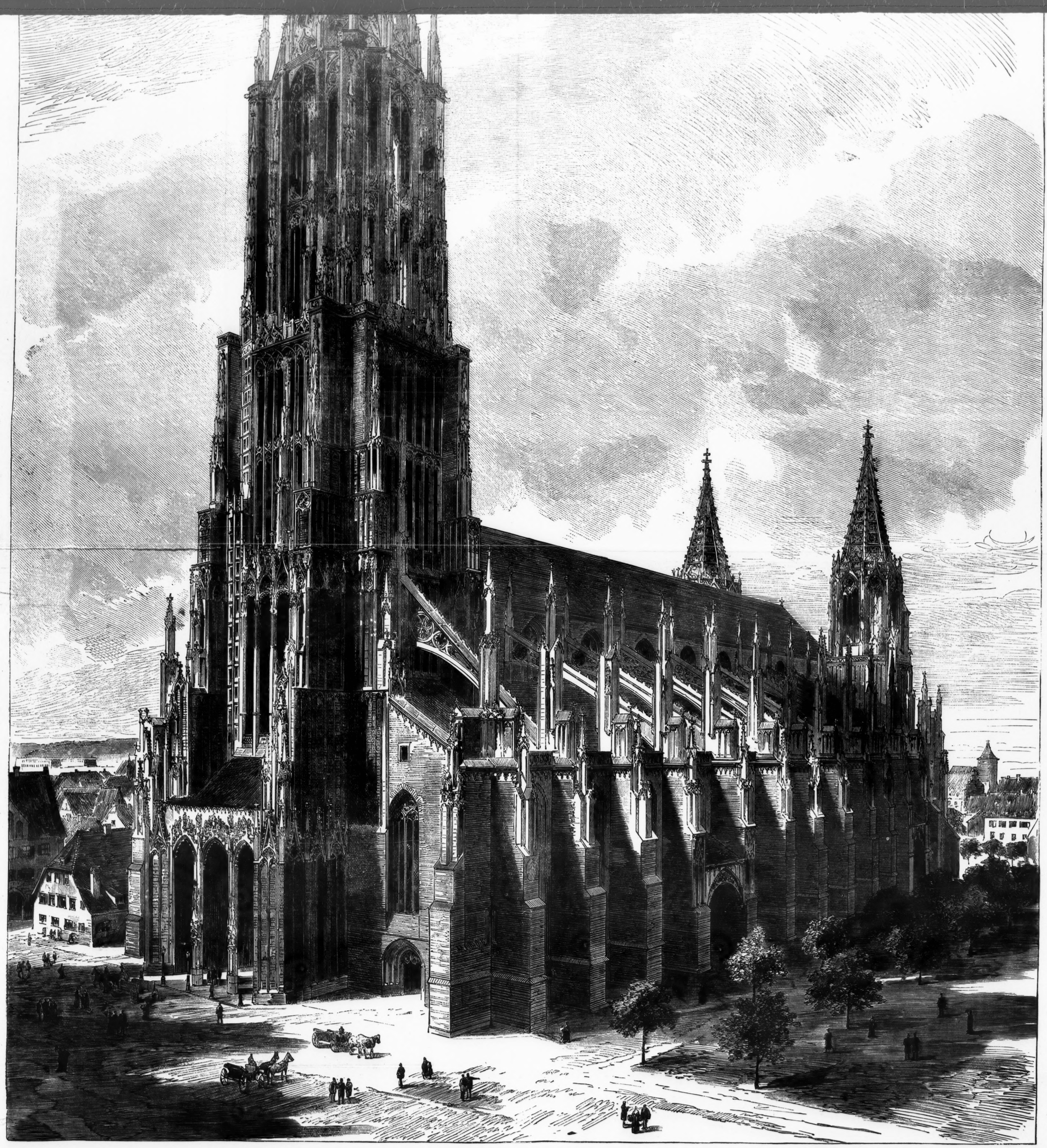
Proposed Public Offices for Hanley.—The burgesses of Hanley have been interesting themselves in the question of providing public offices, law courts, and other accommodation for the town, as well as securing land for the purpose of erecting thereon at some future time an assembly-room. At a public meeting on the 7th inst. resolutions were passed against the proposals of the Town Council. The majority of the councillors, however, contend that for various purposes in relation to the public business of Hanley additional accommodation is required, and the subject has been brought prominently forward in consequence of the Queen's Hotel being in the market. There are, as usual, amongst the ratepayers some who totally object to any expenditure; others who think that an entirely new town-hall, containing assembly-room, courts, and public offices, should be provided; others, again, who deny the immediate necessity for an assembly-room, and feel that all that is required can be obtained by purchasing the Queen's Hotel. The views of the latter have at present prevailed, and a resolution has been adopted by the Town Council in favour of the purchase. But notice has been given of a motion to rescind this resolution.



C.F.Kell, Photo-Litho. Castle St Holborn.

Wyman & Sons, Printers, Gt Queen St

A COUNTRY HOUSE: BROMLEY.——Mr. Aston Webb, Architect.

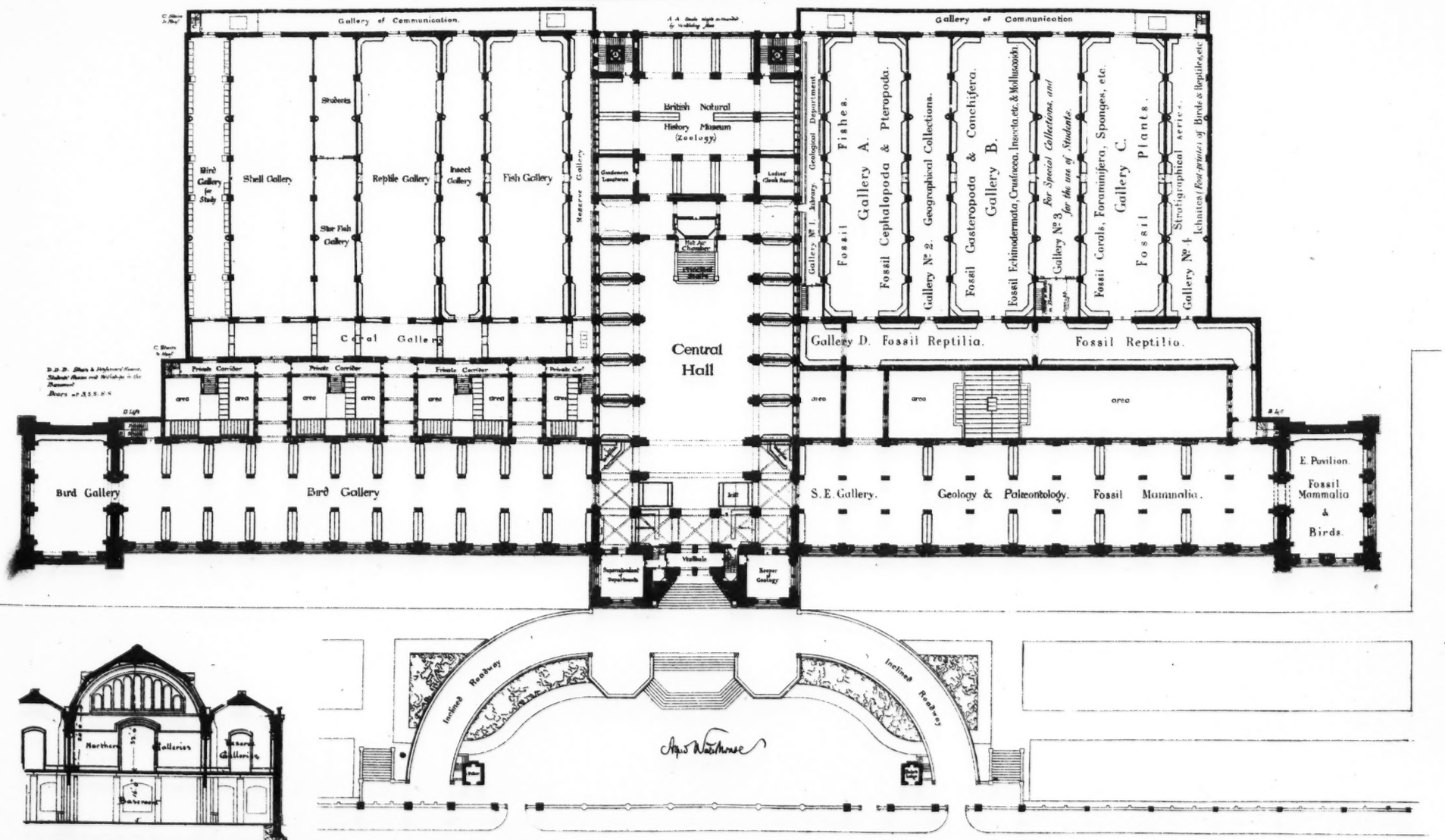


EXTERIOR OF ULM CATHEDRAL: AS PROPOSED TO BE RESTORED.

BRITISH MUSEUM (NATURAL HISTORY), SOUTH KENSINGTON.

Ground Floor.

Scale of Feet.



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MARKET HALL, NEWARK.—Competitive Design by Messrs. Saville & Son.

THE NEW NATURAL HISTORY MUSEUM, SOUTH KENSINGTON.

WE give a ground-plan of this Museum, showing the arrangement of the cases, &c. The lettering on the plan renders further description almost unnecessary, but we may, perhaps, usefully quote a few particulars given in Mr. J. Osborne Smith's paper on "Museums," published by us last week. The front galleries are each 278 ft. 6 in. long by 50 ft. wide. The six large northern galleries are 137 ft. long by 40 ft. wide each, and the six reserve galleries alternating with them are each 137 ft. long by 20 ft. wide. The whole of these twelve galleries are top-lighted. The Coral Gallery and Reptilian Gallery are each 200 ft. long by 17 ft. wide. The Central Hall is 170 ft. long by 97 ft. wide and 72 ft. high; the staircase is 20 ft. wide. This central hall, with its dozen recessed bays on either side, is intended to form an Index Museum or popular typical collection of natural-history subjects. This portion of the Museum is not yet fitted up, but the necessary fittings for carrying out the idea are in progress.

The building is set back about 100 ft. from the Cromwell-road. The length of the south or principal front is 675 ft., and the towers are 192 ft. high.

The small cross section in the left hand corner of the plate is taken through a portion of the Northern galleries.

The fittings have been designed by Mr. Waterhouse, A.R.A., the architect of the building, and are placed in positions specially arranged to receive them. Some have been executed in metal, but most of them are in mahogany. The doors are ebonised and strengthened by metal plates. Some of the galleries are fitted with table-cases brought from the British Museum. The wall-cases in the Northern galleries are arranged in bays about 17 ft. long. The side-lighted front galleries have pier-cases at right angles to the windows, on each side of a central gangway; these cases are about 15 ft. long by 12 ft. high, and of varying depth. The Coral Gallery is fitted with cases glazed on both sides and having glass shelves for the specimens.

A general view of the Museum was given in the *Builder* for the 4th of January, 1873, and a plan in the number for the 11th of January of the same year. In our volume for 1879 (p. 628) we gave a two-page engraving of the interior of the Central Hall or Typical Museum. Some sketches of details of the exterior will be found in vol. xlii., pp. 392-393.

CHINESE FISHING-STATIONS.

ONE of the most interesting of the foreign sections of the International Fisheries Exhibition at South Kensington is that occupied by China. Sir Robert Hart, K.C.M.G., the President of the Chinese Commission, has, in his capacity of Inspector General of the Imperial Maritime Customs, published an exceedingly useful catalogue of the Chinese exhibits, which gives, incidentally, a great deal of interesting information as to the Chinese fishing-stations and the economic and social condition of the fishermen.

The various Treaty Ports on the coast of China are all more or less important centres for fishing, but we are told that Swatow,—the fisheries of which place in particular have been fixed upon to be prominently represented in the present exhibition,—enjoys in itself, on a smaller scale, all the advantages which are distributed along the seaboard. Swatow was opened to foreign trade by the Treaty of 1858. It is situated at the north-eastern corner of the province of Kwangtung, in latitude 23° 20′ 43″ N., and longitude 116° 39′ 3″ E., near the frontier of Fukien. The river Han, which forms above Swatow a vast estuary, flows past the city, and, after many ramifications, joins the sea a few miles below the town. In the district of Swatow, T'at'oupu, commonly called Tatapou, and Haimên, are the most noteworthy stations for deep-sea fishing. Tatapou is situated on a branch of the river Han; Haimên lies, in a southerly direction from Swatow, right on the sea. Tatapou is of the first importance, for from this place all the other minor places of this district are supplied with the necessary fishing gear.

The work of the fishermen is most arduous, but they are described as robust and strong, and quite equal to their task. For the most part they live on the boats, and, as a rule, do not become rich. There are no benefit societies of any kind where the fishermen might insure their lives to provide for cases of accident, nor are there assurance societies where the boats and gear might be insured against the dangers and risks of the sea.

At Tatapou and Haimên the fishermen have from olden times formed themselves into a guild; they have their guildhall and their temple, the former for a place of meeting and entertainment, the latter for worshipping the gods before proceeding to sea. Models of boats, nets, and ropes are generally deposited in the temples as offerings to the gods, that they may protect the craft whilst exposed to the dangers of the sea, and bestow their blessing on the haul. At Double Island, at the mouth of the river Han, a temple has been built by the fishermen of the district. It forms a place of pilgrimage, whither they proceed regularly once a year, on the birthday of T'ien Hou, the Goddess of Heaven.

The fisheries of Ichang are remarkable as being situated nearly in the centre of China proper, at a distance of a thousand miles from the sea. Ichang is, as yet, the head of steam navigation on the Yangtze. The "Great River" is here about three-quarters of a mile wide in summer, and has a great depth of water,—over 150 ft. in places. The fishing divides itself naturally into three kinds (*a*), fishing in the river itself; (*b*), fishing in the numerous mountain streams which fall into the Yangtze in this neighbourhood; and (*c*), fishing in the shallow lakes and large ponds which abound in close proximity to the town. Fishing with the live otter (exhibit No. 1 in the Ichang collection) is perhaps entirely peculiar to this immediate neighbourhood. But few people at Ichang make fishing their sole calling, the work being carried on chiefly by small farmers, who combine with it other occupations.

The fisheries of Ningpo have their centre in the city of Ningpo, which stands on the River Yung, twelve miles from the sea, in latitude 29° 58′ N., and longitude 121° 22′ E.,—about ninety miles south of Shanghai. It is the point of convergence of an extensive river and canal system, and at the same time occupies a commanding position with reference to the Chusan Archipelago. Partly owing to the wealth and enterprising character of its population, and partly to its favourable situation, Ningpo is one of the most celebrated places in China for the extent and variety of its fishing industries.

The fisheries of South Formosa include those of the port of Takow, and of Anping, Lambay Island, the Pescadores Islands, and of the South Cape. The Island of Formosa is politically a part of the Chinese province of Fukien, from which it is separated by the stormy Formosa Channel,—about 100 miles wide. The exhibits from this group of fisheries are for brevity's sake termed the Takow Collection.

The exhibits in each of the four collections from Swatow, Ichang, Ningpo, and Takow are divided into distinct classes. Class I. (Fishing) includes in each collection nets, hooks, lines, spears, and other gear used in sea-fishing or fresh-water fishing, besides models of boats and cargo junks. One of the most interesting exhibits of this kind is included in the Takow collection, and consists of a model of a catamaran, or bamboo raft, as used at Anping. These rafts are the chief means of communication with vessels in the roadstead; no foreign-fashioned boat, when a "bar" is on, could live through the surf. In the Swatow Collection (No. 68) is a compass, *Lo ching p'an*, a very primitive article, used by fishing-boats and junks. It should be noted that in the Chinese compass, the arrow-head indicates the *south*.

Class II. is devoted to the Economic Condition of Fishermen. In the Swatow collection are exhibited a number of articles of apparel worn by the native fishermen. Exhibit No. 18 in this collection consists of a fisherman's hut, composed of a wooden frame fastened to the ground by means of heavy stones, and covered by a straw-roof. The separate mats are held together by bamboo poles. The hut contains the household articles used by fishermen. The floor is covered with a straw mat, on which is laid a second mat, of reeds. Exhibit No. 19 is the model of the Fishermen's Guildhall at Haimên before referred to. A few steps lead into the courtyard, which is flanked on either side by a row of buildings, in which are the kitchen and the secretary's rooms. In the middle of the yard stands the guildhall proper,—a two-storied structure. The lower story serves as the weighing-room. A staircase leads to the upper story, which contains the assembly-rooms. In front of the house, and sheltered by a latticed roof, stands a large platform, which in ordinary times serves for drying fish, while on festive occasions it becomes the stage for theatrical performances. Exhibit No. 20 is a model of a fisherman's temple. In front of the building is a wide terrace. Within the building is the altar, with its idols and incense-burner. The inscriptions on the walls contain appropriate references to the fisherman's calling.

Class III. is devoted to the commercial and economic aspects of the Chinese fisheries, and includes a great deal to interest the visitor. In the Swatow collection is shown a stove for curing fish, with all the necessary implements. In the Ningpo collection is shown the model of an ice-house, the construction of which is most simple. It consists, in fact, of a kind of reservoir, with stone walls, generally 20 ft. high and 65 ft. long by 46 ft. wide, covered on both sides with thick layers of mud, and upon these walls rests a high and thick straw roof, supported on bamboo rafters. A flight of steps on one side leads up the wall to the entrance of the ice-house, which is a doorway cut through the roof and covered with a straw curtain. Through one wall, on a level with the gound, a door is likewise cut, by which the ice is removed. Gutters traverse the floor of the building, to allow water to escape. The ice is stored in alternate layers with straw mats. The fields around the ice-houses are covered with water, and every morning during the cold season, the ice, generally very thin, which may have been formed in the night on these artificial ponds, is gathered and stored in the house. When the reservoir is full of ice, a thick covering of straw is placed upon it. Although very simple, this system of ice-storage is stated to work admirably, and to effectually resist the intense heat of summer. A great deal, if not the whole, of their success is attributed to the nature of the earth which enters into the composition of the walls of the reservoir. It is a thick clayey loam, which never dries completely except on the surface, and is impermeable to heat and water. The supply of ice often keeps for years, and as in some winters the weather is so mild that no ice can be collected on the ponds or fields, a special law obliges the owners to have a three years' supply, and some of the ice-houses are kept specially for this reserve. The capacity of the ice-house is from 2,000 to 3,000 piculs each, but these are smaller than the common picul,* being one man's load, 80 instead of 100 catties. An ice-house costs from 300 dols. to 400 dols., including the land, measuring about two acres, which surround it. In the Ningpo collection there is also shown a window made of oyster-shell, and specimens of shells with images inside,—"Buddha shells." These curious shells were obtained in Hangchow, the capital of the province of Chêhkiang. The little image is produced by thrusting into the living shell-fish a small model,—of metal or clay,—of a Buddha or some similar object, and in course of time this becomes covered by the nacre. The details of the process are kept a trade secret by those acquainted with it.

Class IV. is appropriated to Fish-Culture; Class V. to Natural History, and Class VI. to History and Literature, including maps.

The decoration of the Chinese section is not the least remarkable feature of the exhibition. These decorations have been carried out partly by Messrs. Holland & Son, and partly by native workmen. Closely adjacent to the north wall, on either side, are two long scrolls bearing Chinese characters. Their meaning is told in the following lines:—"The fisherman propels his skiff on the vernal stream, leaving care behind on the shore. The soft notes of a lute borne upon the evening breeze strike his ears; the sun's bright rays pierce the mists of the hills." These scrolls, and also the "characters" on the side walls of the court, are the work of the Chinese Ambassador to England, the Marquis Tsêng, who enjoys the reputation of being one of the finest caligraphists in China.

* 1 catty=1⅓ lb. avoirdupois; 1 picul=100 catties=133⅓ lb. avoirdupois. 16·80 piculs=1 ton.

SHAM LEGISLATION.

THE INSTITUTE AND THE BOARD OF WORKS.

MR. STORY-MASKELYNE, in the House of Commons last week, asked the Chairman of the Metropolitan Board of Works whether the design for the vast building in the Northumberland-avenue, designated as the "Hôtel Métropole," had received the sanction of the Institute of British Architects, as required by the Act of Parliament.

Sir J. M'Garel Hogg, in reply, said,—The design for the Hôtel Métropole was submitted to the Institute of British Architects, as required by the Act of Parliament, but after due consideration the Board did not think it necessary to put the tenant to the expense of carrying out the alterations suggested by the Institute, having regard to the fact that the plans for the building had already been amended in accordance with the recommendations of the Board's Architect, who was himself then a member of the Council of the Institute.

This reply seemed to show such an extreme disregard for the requirements of an Act of Parliament that we turned to the statute, the Charing-cross and Victoria Embankment Approach Act, clause 30, and found the following, which, as it seems to us, gives the Institute no power to interfere at all:—"The architectural elevations of all buildings to be erected under this Act, fronting the new approach to the Thames Embankment, or fronting any street to be made under this Act, shall be submitted by the Board to the consideration of the Council of the Royal Institute of British Architects previous to the commencement of any such buildings."

What advantage is to result from "submitting" the elevations to the Institute we are unable to discover.

FOREIGN NOTES.

The Electric Light Abroad.—Following the example of England, the Austrian Government has issued an ordinance for the regulation of electrical installations for lighting and other purposes. It is necessary for companies before laying down an installation to obtain a formal concession from the local Government authorities in every case.

Copenhagen.—The celebrated Danish landscape painter M. Brendstrup died on the 3rd inst. in the Danish capital. He was born in 1814, and was a member of the Copenhagen Academy of Arts.——Dr. Christian Hansen, professor of architecture at the Copenhagen Academy, died last week at Hietzing. Like his eldest brother Theophilus, the celebrated architect of Vienna, he was a thorough representative of the Greek Renaissance. Dr. Christian had distinguished himself in his earlier career by discovering and reconstructing the Temple of Nike Apteros. He was also the architect of the University, the Natural History Museum, and the City Hospital of Copenhagen, and of the great Naval Hospital at Trieste.

Hungarian Parliament House Competition.—The competition which was opened last year for designs for a new Parliament House at Pesth has at length been concluded with the following awards. The four first premiums, which were each of the value of 5,000 florins, were adjudged respectively to the following competitors: (1) Professor Emerich Heindl; (2) Alois Hausmann; (3) Albert Schickedanz and Wilhelm Freud; and (4) Otto Wagner, M. Kallina, and Rudolph Bernd. Two other designs were purchased for 1,500 florins each. They were respectively by (1) MM. Fellner and Helmer, and (2) Chevalier von Förster.

Chester Cathedral.—The Dean of Chester has just issued a statement of the funds contributed in Chester Cathedral during the year 1882 and the purposes to which they have been applied. Reverting to what has been done in the Cathedral, the dean says that the whole of the north wall of the chapter house has been rescued from its state of decay and danger. The repair of the outer roof of the south transept is now completed, towards which the Ecclesiastical Commissioners contributed 1,000*l.* Steps will now be taken to complete the vaulting of the east aisle, one bay of which was done several centuries ago. The total cost will, it is estimated, reach 700*l.*

THE VIENNA CITY RAILWAY.

IT is announced from Vienna that the English contractor for the Vienna city railway has given notice of his having raised the required first instalment of the capital for its construction, and it is accordingly expected that the first portion of the line will very shortly be commenced. The railway is to run above ground on viaducts, and will be very expensive.* The cost has been estimated at about 370,000*l.* per mile, which is considerably larger than that of the Berlin city railway, which cost about 240,000*l.* per mile to build. It is, however, just possible that the Vienna authorities may, at the last moment, take up a rival scheme, which will cause a considerable modification in these plans. Dr. Werner Siemens, who has already carried out several small electric railways at Berlin and elsewhere, has laid before the municipal authorities a project for a comprehensive network of electric lines for the Austrian capital. He proposes to make them of narrow gauge, and partly underground and partly above ground. In tunnels beneath the streets or on viaducts above them, Dr. Siemens proposes to run a constant succession of electric carriages, the electric current to move them being supplied from a series of central stations. The old part of Vienna,—the city, in the narrower sense,—lies high, and here Dr. Siemens proposes to carry the line from one side to the other through tunnels. In the other portions of the city he would erect viaducts. Dr. Siemens does not propose his scheme as one intended altogether to supplant that for which Mr. Fogerty has obtained the concession. He offers it rather as a supplement or improvement for adoption in the most thickly-inhabited parts of the city, and he wishes the Fogerty scheme to be carried out in the outer ring of suburbs. Dr. Siemens also proposes that some of the tramways, particularly those which run to the most distant and least populous suburbs where a steam railway would not pay, should be supplanted by electric railways, as these are more rapid and in other ways preferable to trams. Dr. Siemens claims for his electric railway that it is the only system by the help of which it is possible to pay the shareholders and to maintain a constant succession of conveyances starting at very short intervals. This latter arrangement is absolutely required in the middle of a large city, where long trains starting at long intervals would be of little service as compared with short trains or single carriages running at the most frequent possible intervals.

With regard to the cost of the undertaking, Dr. Siemens states that as against the steam railway scheme, costing 370,000*l.* per mile, his electric lines in the middle of the city would not require an outlay of more than 45,000*l.* per mile to construct.

* In vol. xlii. of the *Builder*, pp. 100, 104, we published fuller particulars of this railway, and gave a view of the central station.

NOTES FROM BIRMINGHAM.

SIR,—The experiment recently made by the Improvement Committee of the Corporation of letting their vacant land on leases for seventy-five years, *by auction*, has proved a remarkable failure, only one lot out of ten offered having found a purchaser, and in that respect forming an exact parallel to the letting at Wolverhampton a short time since. The Committee proposed to suspend the payment of the ground-rent during the first seven years of the lease, and to re-adjust the ground-rent payable during the remainder of the term, so as to include the payment of the amount so deferred, with interest at four per cent. per annum. This very liberal offer, however, failed to induce such biddings as the Committee were willing to accept for nine out of the ten lots put up (for one of which, a plot in Cherry-street, 1*l.* 5s. per yard was bidden), and they were consequently withdrawn. The last lot, a site of 300 yards area, for a proposed public-house, with a very large frontage, and the offer of a licence to be transferred, the buyer to spend not less than 3,000*l.* in building, was knocked down at 10s. 3d. per yard per annum. In contrast with the above may be mentioned a sale on the following day of thirty-seven lots of ground-rents (freehold) situated in and about the Monument-road, Birmingham, a purely residential neighbourhood, and subject to the usual fluctuations as regards letting. These were knocked down at prices representing an average of nearly thirty years' purchase, and so eager were all concerned, that the sale occupied less than an hour's time. One cannot help reflecting that the latter sale showed at least that money at the present time must be both cheap and plentiful; and the former sale showed that the Committee appear to have placed too high a value upon their plots. If the 1*l.* 5s. per yard may be capitalised at the same rate as in the latter sale,—thirty years' purchase,—it will show the value of the freehold to be 37*l.* 10s. per yard, a price at which most will agree it cannot be sold, and the Committee would, therefore, be wise in reducing their estimate of value, and get the land let, and built upon, when both rent and rates will be accruing to the town. It is estimated that on the land already let by the Committee new buildings have been erected of no less a value than 300,000*l.*, the whole of which, if the law is not altered, will revert to the town at the expiration of the leases. But there is just a possibility that the law as regards ground-rents of buildings may be so altered that leaseholders will have the option of buying the freehold. A Bill is, it is said, about to be brought into the House of Commons by Mr. Broadhurst to enable this to be done; and it cannot be doubted that it will receive a large amount of support; for any measure,—not a violent one,—which will have the effect of diminishing the area of great estates, and of adding to the number of small proprietors, must necessarily promote the general welfare of the community. The present system cannot fail if persisted in to help largely to bring about the ruin of the country. Again, when corporations are the lessors of land, as in this case, much better terms would be obtained if the leases were longer, or they might be perpetual. It cannot be expected that buildings of the same value and durability will be put upon land with only a seventy-five years' lease as there would be upon land with leases of a much longer duration. This is a matter which affects us all, but more particularly those of us engaged in building. The slovenly manner in which houses of all kinds are erected at the present time is a matter of notoriety and disgrace, and nothing would operate so effectually to improve the character of the architecture and workmanship as a feeling of permanence in possession would engender.

The bricklayers and carpenters of the Birmingham district have just had an advance of wages to the extent of one farthing per hour. The building trade, however, continues exceedingly dull here.

Another Board school was completed and opened on the 7th inst. in Foundry-road, so-called because it was formerly the road to the celebrated foundry and works of Boulton & Watt at Soho. The school is on a modification of the class-room principle, with a large hall for lectures and general meetings, and is to accommodate 1,000 children.

The Crompton-Winfield Electric Lighting Company have made an arrangement, which only requires the assent of the central authority to complete it, to lay down wires in certain streets in Birmingham, and to light with electricity the area bounded by Colmore-row, Bull-street, High-street, and New-street for a period of sixteen years, the first two years of which are to be allowed them to complete their arrangements.

The new branch of the King Edward School at Aston is now complete and opened. A similar branch was recently opened at Camp Hill, so that the scholars have the schools nearer their homes. This has caused the school in Meriden-street to be deserted, and the School Board have taken it for a Board school until new schools can be built.

There is an old proverb which says that "Every parent thinks his or her child the finest and best," and it has had an illustration recently in a lecture delivered to the Birmingham Philosophical Society, "On the Utilisation of Town Refuse, as illustrated by the Process adopted by the Birmingham Corporation." The lecturer, Mr. Councillor Tait, is a surgeon, and one of the members of the Health Committee, which has the carrying out of the work of scavenging and the removal of night soil on the pan system, and he became quite enthusiastic in describing its merits, especially as compared with water carriage, which he stigmatised at the outset as "the easiest, laziest, and therefore, on that account alone, the very worst that could be adopted." He then proceeded to state that Birmingham had become one of the healthiest towns in the kingdom, and having had to do with every

arrangement which had been put in force in the borough with that object, he did not hesitate to state that the most efficient means to that end was the present system of disposal of the refuse. The law having been put in force to prevent the fouling of the rivers, this system had been forced upon them after many expensive experiments. Only about two-thirds of the borough, however, is under this arrangement, the other third (presumably the wealthiest) having water carriage. Every year the Corporation collects 1,758,000 pails, the weight of whose contents is about 52,000 tons. This contains some 94 per cent. of moisture, and after the ammonia is fixed by sulphuric acid this is evaporated, and forms a valuable guano, which sells well to the farmers. The ash-pit refuse is sorted by hand, and the profits derived from rags is about 260*l.* per year, and from tinware, which is placed in a muffle and reduced to tin and iron, was 630*l.* 19s. last year. The rest of the ashpit refuse is burnt in specially-designed furnaces, and its heat raises steam, and evaporates the water from the night soil. The silicious clinker which remains is being used instead of sand for cement concrete in walls and flooring. The whole of the flooring (not cart-roads) to the new covered market at Smithfield is of this material, and several patches of sidewalk to streets in the borough are paved with it, and it wears very well. With more extensive apparatus and premises the committee appear to see their way to making a profit upon their labour, and some time ago they persuaded the Town Council to vote a sum of 27,000*l.* for that object. It is to be hoped some good features will be ultimately developed by the system, which is certainly an improvement on the old midden plan in the weekly removal before it has time to decompose and become a nuisance; but it is a plan not likely to be adopted by the author of the paper, or any one else who can afford the luxury of a water-closet. E. G.

CHIT-CHAT FROM PARIS PAPERS.

THERE is as eager a rush for the "first view" at the French *Salon* as there is at our own Academy; and though for one day the living pictures claim the greater share of attention, art quickly re-asserts its claims. "*L'or est une chimère*," sang Robert the Devil. But artists of the present day can tell a very different tale; gold is not a chimera, but a pleasant reality. It is curious, if a glance be taken at a very interesting and rare publication, "Le Bulletin de l'Alliance des Arts," published under the direction of Monsieur Paul Lacroix in 1845, and which gives an account of the "Valeur vénale des ouvrages d'art exposées au Louvre" (for thirty-eight years ago it was in the Louvre the *Salon* was held), to note the monetary difference in the awards to genius then as compared with now. Meissonier, whose pictures fetched most, had his "Corps de Garde," his "Partie de Piquet," and his "Jeune Homme regardant des Dessins," valued at 3,000 francs (120*l.*) each. Could he have foreseen what the whirligig of time was to bring about, and the sum his little "Napoleonic" *chef d'œuvre* would fetch at Christie's, he would have bought them in. At the Hôtel Bullion, a picture by Herrera the elder, worthy of a museum, sold for 3 francs 15 sous. A country scene, by Jules Andre, only brought the artist 300 francs. Baron sold his "Oies du Frère Philippe" for 500 francs. H. Bellanger was one of the lucky ones, he got 40*l.* and 60*l.* for his subjects. M. Belloc got 32*l.* for a portrait. Court got 120*l.* Benouville, the painter of classic scenery, only got a few hundred francs for his works, and landscapes with animals, by Rosa Bonheur, fetched 5*l.* and 6*l.* Brascassat, who was more fortunate, got 40*l.*, 80*l.*, and 120*l.* for his works. His "Cow attacked by Wolves" was valued at between 240*l.* and 280*l.*, and "infatuation" was the word used as a reason for such a sum. Calame had also his admirers. A Russian bought his "Orage" (Storm) for 280*l.* Compte Calix sold his pictures for 12*l.* and 16*l.* Corot sometimes found it difficult to get 20*l.* for a large canvas. The admirable paintings of Eugène Delacroix, his "Marcus Aurelius" even, did not find purchasers, and at that time Delacroix sold pictures for 20*l.* worth 4,000*l.* Diaz only asked 40*l.* for a portrait, 12*l.* for a landscape; and Hippolyte Flandrin, 120*l.*, sometimes 40*l.*, for a portrait.

It would take too long to quote the various sums mentioned by Paul Lacroix. Amongst others, such as 20*l.* for the landscapes of Français, 8*l.* and 12*l.* for Guillemin's Breton subjects, Paul Huet's great subjects 40*l.*; the "Death of Manoir l'Escaut," by Jean Gigout, 80*l.*; a fine landscape, by Troyon, 36*l.*; the "Auto da Fé" of Robert Fleury, 280*l.*, &c. We are now certainly a long way from the modest sums of those days, and one can measure by these citations,—dry, but eloquent,—the ground that in a commercial sense art has traversed since then.

Sculpture has more difficulties in the path of success than painting. There is a greater strain on the idealistic faculties, the work is harder, the pay less, and the incidental expenses are greater.

Talking of sculpture and of modelling, especially in copper and bronze, an hour spent in the *ateliers* of the Rue de Chazelles, where M. Bartholdi is completing his superintendence of the work of the colossal statue of "Liberty," which is to be placed on an island in the middle of the bay of New York, opposite Long Island, is most interesting. It is nearly ten years ago that M. Bartholdi commenced this work, and eight since a banquet was given by Americans and Frenchmen in honour of his idea. The work now approaches completion. All who visited the last French Exhibition must remember the gigantic head of "Liberty" exposed in the gardens of the Exhibition in the Champ de Mars. The arm which holds the torch, round which twelve people could easily stand, has already been to America and is back again. In six or eight months we shall see the statue standing erect. Now though only finished as far as the middle of the body, it overtops the neighbouring houses.

When one thinks the "Bavaria" at Munich is only fifteen mètres high, that the gigantic "Saint Charles Borromeo" is twenty-two mètres, that the Column Vendôme from the base to the summit is forty-four mètres, and that the statue of "Liberty" will be higher than this by two mètres and some few centimètres, one is astounded; the Colossus of Rhodes, taking the maximum of the proportions attributed to it by tradition, would have looked like a small boy beside this giantess, who will weigh (all calculated) 200,000 kilos.

Can one picture to oneself this enormous light-house, this statue (its head encircled with a crown of illuminated stars) rising like an "Adamastor" of safety out of the sea during tempests? It appears the wind sweeps across the plateau of Montsouris with violence equal to that which it exhibits in the Bay of New York, so it is perhaps at Montsouris they will erect the *nome*, and where all Paris can see, in all its prodigious height, this marvellous specimen of human handicraft ere they despatch it to New York. The ground of the "Ateliers" (workshops), Gazet Gauthier (where the works of the re-constructing of the Column Vendôme, the dome of the Opera, and the Vercingétorix of Millet were executed) has been sold, and the yards must be clear of all matter in six months: so in six months Bartholdi's "Liberty" will be complete, and that day the energetic and sympathetic author of the "Lion of Belfort" and the "Alsatian Vine-dresser" may rest on well-earned laurels, on the completion of one of the works of the century. Meanwhile the *ateliers* of the Rue de Chazelles present a most curious scene. On all sides are strewn gigantic fragments, and *silhouettes* of fragments, pieces of bust, drapery, arms, hands, &c. The carpenters and joiners are constructing a framework of wood, covered with lath-work, then a sort of impression of mould and wood called *gabarit*, on which the coppersmiths (or tinkers?) apply a piece of copper which they beat in a way to obtain an exact *silhouette* of the framework coated with plaster, and these fragments of statue, these pieces of copper, are united together, at certain distances, by ironwork round the interior bracing of ironwork. Thus, little by little, the statue is growing. The head is finished, the right arm is finished, and part of the body. Last summer twenty-five guests lunched in the calf of the right leg. The rest,—the bust, the shoulders, the drapery of the neck,—is still in the forge. But gigantic fingers (two *fore* fingers, two yards and a half long), are there already cast, and are leaning against the wall. It is like some fairy tale to hear the strokes of the hammers on the copper, and to see human beings, who, in comparison, look like so many dwarfs, building up this metal giantess.

Two steps away is the Parc de Monceau, where Spring is really making its appearance. Flowers, birds, children, in the pretty park, and a few steps off, this forge, where sixty human beings are carrying out this almost superhuman work under the eye of the energetic man who has given no little of his life and some of his own money to this work, which is to be his glory. M. Bartholdi is one of those valiant workers-out of an idea that criticism itself finds a pleasure in honouring.

THE CROMWELL-WILLIAMS FAMILIES.

DURING the fifteenth and sixteenth centuries it was the custom of aged and well-to-do people to have their effigies, names, dates of birth, and other particulars concerning them, deeply engraved on brass plates, which, after their death and burial, their relatives or friends securely fixed against the walls, or into stone slabs placed over their graves, within the churches. It was probably owing to this custom that the art of memorial brass engraving was brought to great perfection during those centuries. As, however, very many of the inscriptions on the brasses contained expressions or allusions contrary to the religious tenets professed by the Reformers and the Puritans, a great number of the brasses were removed by them, and probably many more were stolen, and sold as old brass. Hence it is that so few ancient brasses are now to be met with in churches.

In a gravestone forming part of the floor of the chapel south of the chancel in St. Helen's Church, Bishopsgate, London, there are two effigies on brass of a man and woman clad in gowns, such as were worn by gentlemen and gentlewomen towards the end of the fifteenth century, and under the effigies there is a Latin inscription on brass in black letter, which, translated into English, runs as follows:—

"Here lies Thomas Wylliams, senior, and Margareta his wife. The said Thomas died xvi January, MCCCCXCV., and the said Margareta died . . . MCCCC. . . . ."

Thomas Wylliams was not buried at this spot in the church, but in the nave, whence the gravestone was removed to where it now is, some years ago, when the church was altered and repaired. When he married Margareta he was a widower with two sons, Thomas and John, and one daughter, Katharine, and she was a widow with one daughter, Isabella. It is to be observed that as the date when she died is not filled-in in the inscription, it may be that she married again and was not buried in St. Helen's Church. That the effigies of "Thomas Wylliams and Margareta his wife," were engraved on these brasses before they died, and, therefore, are fairly good likenesses of them, there seems to be no doubt; but what I desire to call particular attention to is that if his portrait, as described on his brass, be compared with a good portrait of Oliver Cromwell, the Lord Protector, it will be seen that the two portraits remarkably resemble each other. Now this may well be so, for Thomas Wylliams was the younger brother of Jevan-ap-Morgan, of Lanishen, in Glamorganshire, who was the grandfather of Morgan Williams, the ale-brewer and innkeeper of Putney, who was the great-great-grandfather of Oliver Cromwell.

The Williams family of Lanishen were attorneys and accountants in South Wales. Such were the brothers Jevan-ap-Morgan and Thomas Wylliams, and such were their father, Morgan-ap-Howell, and grandfather, Howell-ap-Madoc. Jevan-ap-Morgan married Margaret, daughter of Jenkyn Kemeys, of Bagun, in Monmouthshire, whose son, Jevan Kemeys, built, and resided at, Cefn-Mably, in Glamorganshire. They had one son, William-ap-Jevan, and one daughter, who married John Morgan, brewer, of Cardiff. William-ap-Jevan was an attorney and accountant; he also was steward of the lordship of Glamorganshire, first for Jasper Tudor, Duke of Bedford, and afterwards for his nephew, Henry VII. He had two sons, Morgan-ap-William, who, coming to Putney in 1490, was thenceforth called Morgan Williams and John Williams. The latter was the ancestor of Lord Williams of Thame. Morgan Williams was brought up as an ale-brewer by John Morgan, who, in 1487, started an ale-brewery at Mortlake, in Surrey. At this time the king,—Henry VII.,—chiefly resided at the pleasant palace beside the Thames at West Sheen, now called Richmond, in Surrey. As he and his family were Welsh, so also were his servants of the household and yeomen of the guard, who, with their families, settled in the adjoining villages of East Sheen, Mortlake, Barnes, and Putney; and as their beverage was a peculiar kind of ale which could not be obtained in the

locality, John Morgan was induced to start the ale-brewery at Mortlake, as we have seen. In 1490 he and his wife's nephew, Morgan Williams, started another ale-brewery and an inn, which they called the Red Lion, in Putney. In 1493 John Morgan returned to Cardiff, and then Morgan Williams became sole proprietor of this brewery and inn, which he carried on until the lease expired in 1511.*

Returning now to Thomas Wylliams. About 1445 he came to London from Lanishen, and commenced practice as an attorney and accountant in the parish of Great St. Helen's, Bishopsgate. Here he married a lady named Daniell, by whom he had two sons and one daughter, as already stated, and with her he acquired some land at Potter's Bar, and a residence and some land at Edmonton, in Middlesex. Here, probably, she and his eldest son died, and were buried in Edmonton Church. In the summer of 1464 Sir Richard Woodville and Jaquetta of Luxemburg's wife were admitted by copy of Court Roll from the lord of the manor of Wimbledon to a mansion, called Upper Place, with eight virgats of land belonging thereto, situated on the east side of Putney-hill and the south side of the Upper Richmond-road, in Putney. Here they took up their residence, so as to be near their daughter, Elizabeth Woodville, Queen of Edward IV., when the Court were in residence at the palace at West Sheen. In 1470 Sir Richard Woodville being dead, Anthony Woodville, his son, succeeded to this copyhold, and here Thomas Wylliams's younger son, John Williams, who had been brought up as an attorney and acountant, became his steward. At this time a smith and armourer, named Richard Smyth, resided at Roehampton, in the parish of Putney. He was the younger son of William Smyth, who, with his brother-in-law, William Cromwell, came from Norwell, in Nottinghamshire, in 1414, and settled in Putney (see p. 601, *ante*). About 1473 John Williams married, in Putney Church, Margaret Smyth, the youngest daughter and heiress of Richard Smyth. It was by this marriage the relationship first commenced between the Williams family of Lanishen and the Cromwell family of Putney. This was twenty-one years before Morgan Williams, who was John Williams's great-nephew, married Katharine Cromwell, the eldest daughter of Walter Cromwell.

When William Cromwell and William Smyth came to Putney, a brother of the latter, named Richard Smyth, came with them, and settled at Mortlake. William Cromwell had one son, John Cromwell, and one daughter, who married William Michell, dyer, of Wandsworth. Their granddaughter, Margaret Michell, married the celebrated Sir Ralph Sadlier, who was Thomas Cromwell's clerk and secretary, and who in 1540 became one of Henry VIII.'s principal Secretaries of State, and then was knighted. William Smyth had three sons, William, Nicholas, and Richard; and one daughter, who married her cousin, John Cromwell. I may here remark that the latter, in 1461, 1 Edward IV., remised the lease of the prebend of Palace Hall, at Norwell, in Nottinghamshire, which was granted for three lives by a Prebendary of Southwell Church, to his grandfather, William Cromwell, who was the fourth and youngest son of the sixth Ralph de Cromwell of that county. Richard Smyth had two sons, Thomas and Richard, and two daughters. The five sons of the two brothers were brought up as smiths, farriers, locksmiths, and armourers. The two youngest sons succeeded (according to the custom of the manor) to their father's copyholds. One settled in Roehampton, as already mentioned, the other in Mortlake. The remaining three sons settled in Putney, where, as I gather from the Court Rolls, each had a smithy, an armourer's shop, a brewery, and an hostelry. There is no doubt that this family of Smyths by name as well as by trade were largely employed during the wars of the Roses in making arms and armour for the forces which the Barons then hurled against each other. A large portion of the population of Putney was also engaged on the river: some in catching fish, with which it then abounded; some in rowing boats and vessels with passengers and goods to and from London; and some in working the ferryboat to and from Fulham opposite. The High-street on both sides, from the Thames to Putney-hill, half a mile in length, was at this period lined with homesteads and cottages, large and small, scattered and in rows. The larger homesteads, two or three of which were divided into tenements, were occupied by the copyholders, their relatives, and their servants; and the smaller cottages by the general work-people. A crystal brooklet rippling over a pebble bed, with hawthorn bushes here and there dotting the margin, ran down the east side of Putney-hill and the High-street into the Thames, where the new bridge is being erected. The greater part of the water in the brooklet came from copious springs which first supplied a large oblong pond in the grounds of Upper-place. St. John's-road East now occupies the site of this pond. It was chiefly from this brooklet the inhabitants of the High-street derived their supply of water.

JOHN PHILLIPS.

* In 1542 Henry VIII. granted the Priory and Priory Church of St. Helen's, Bishopsgate, to Morgan Williams's eldest son, Sir Richard Cromwell, alias Williams, who was Thomas Cromwell's nephew, and Oliver Cromwell's great-grandfather. Perhaps it was owing to the relationship of Thomas Wylliams to them that the brasses of him and his second wife were preserved during the Reformation and Puritan periods.

THE IRON AND STEEL INSTITUTE.

THE concluding sitting of the Iron and Steel Institute's annual spring meeting was held on the 11th inst., in the Hall of the Institution of Civil Engineers, Westminster, Mr. B. Samuelson, M.P., presiding.

Mr. J. E. Stead, of Middlesbrough, read a paper on "A New Method for the Estimation of Minute Quantities of Carbon, and a New Form of Chronometer." The author said it was impossible to determine with accuracy minute quantities of carbon by the ordinary colour method, owing to the colour of the nitrate of iron present in the material. Investigations on the colouring matter produced by the action of dilute nitric acid upon white iron and steel had shown that it possessed the property of solubility in potash and soda solutions, and that the alkaline solution had about two and a half times the depth of colour possessed by the acid solution. That being so, it was clear that the colour matter might readily be separated from the iron, and obtained in an alkaline solution, by simply adding an excess of sodic hydrate to the nitric acid solution of iron, and that the colour solution thus obtained might be used as a means of determining the amount of carbon, even when only so small a quantity as 0·03 was present. The paper then went at length into the method at present in use, the writer stating that he was engaged upon investigations which, he hoped, would throw some light on the true constitution of hard and soft steel, and he believed he would soon be able to lay the results before the Institute. The second paper went into the subject of a new form of chronometer, which he had used in the process described above, and which, he said, had proved very efficient, and had the merit of being extremely simple and easily constructed.

In the discussion which followed, the speakers generally recognised the importance of the method, as affording a new mode of determining the constitution of hard and soft steel, and a vote of thanks was accorded to Mr. Stead for his paper.

In the next paper Mr. W. S. Sutherland, of Birmingham, described a process of utilising gaseous fuel in the manufacture of iron. Whilst fitting on a feed valve to a locomotive about 1866 the idea struck him that it would be advantageous to weld the seams of boilers instead of riveting them; and he set about to consider how best to obtain the requisite heat and apply it economically and of uniform quality and concentration upon the parts to be welded. The required conditions, he found, were best fulfilled by the gas produced from a modification of Story's American water-gas producer. The gas is no more poisonous than coal gas, and the advantages claimed for it are its superior heating power, cheapness, and simplicity of application. It may be produced at a cost of 3d. per 1,000 ft., after paying for coal, labour, and plant, and a net profit of from 2s. to 3s. per ton can be made from the residuals. By mixing the gas and air thoroughly a powerful concentrated flame is secured, which, when it contains an excess of gas, has no tendency to oxidise the iron, and gives a soft mellow heat. The effects of explosions of mixed gas and air are prevented by simple means, and the method has been at constant work for six years without accident. The system, causing air and gas to mix and diffuse more perfectly, produces a higher temperature. The full effect of the heat can be produced directly it enters the boiler, so that complete combustion is secured at once. The first essential is that there should be an excess of gas in the mixture. The slightest excess of air, of fully combined carbonic acid or steam, infallibly burns the iron, makes it rotten, and the weld becomes a bad one. The experience of the author led him to get as much carbonic oxide as possible in his gas, and as little hydrogen and oxygen. If the process of making steel in the Bessemer process could be stopped just when the carbon becomes carbonic oxide and remained in the metal, a soft ductile metal just like wrought iron might be produced without having to add any speigel. Accepting Professor Graham's definition that steel is iron containing unoxidised carbon, and wrought iron is iron in which carbonic oxide is occluded, the author drew the conclusion that to produce a good, true wrought iron which would weld well, and in all particulars take the place of the best puddled iron, it would only be necessary to use the Bessemer converter, and instead of blowing raw air into it, blow Siemens's gas, which contains an excess of carbonic oxide. This process would be simply to produce wrought iron with all its good qualities increased, and certain dynamic considerations make it probable that this process would greatly facilitate the elimination of sulphur and phosphorus.

In the discussion which ensued,

Sir Henry Bessemer congratulated the reader of the paper on having laid the matter before the meeting with so much ability. In the early days of his experiments, he had tried several methods with a view of trying to get rid of their enemy phosphorus, but without success. Notwithstanding this, he had found that any metals that contained a moderate amount of manganese could be blown successfully into wrought iron, which was comparatively, if not absolutely, pure iron, sulphur and phosphorus being supposed to be absent.

Mr. Lloyd mentioned that he was acquainted with the case of a Birmingham manufacturer, who, having been paying to the Corporation of Birmingham 300*l.* per annum for gas, had erected small gas-works of his own at which he manufactured gas sufficient for his requirements at a cost of 100*l.* a year.

Mr. J. Lowthian Bell believed that water-gas would be extremely useful for domestic purposes, for it would get rid of a great deal of the nuisance consequent upon the conveyance of the coal, it would be free from smoke, and, most important of all, the economy in its use would be great.

Mr. Riley and other gentlemen followed, and Mr. Sutherland having replied, the Chairman moved him a vote of thanks for his paper.

A paper by Mr. Fritz Baare, of Bochum, Westphalia, was read on the coal-washing machinery employed by the "Bochumer Verein." The paper dealt with the machinery used by the Bochum Smelting and Iron Company in the manufacture of Bessemer pig iron. It had been found that coke which was poor in ash, and consequently containing but little phosphorus, was of more value for use as fuel than coke containing a higher per-centage of those ingredients, and to obtain the required low proportion there had been established at Bochum plant for the washing of coal on the Lubarich system, the whole of the machinery being worked by a steam-engine of 140-horse power. The washing process consisted in a regular rocking motion, imparted by up and down strokes of pistons to the washing water, a stream of which was supplied through an opening situated underneath a piston at the back of the apparatus, and regulated by a valve. This peculiar motion of the water favoured the separation of the particles of slate from the coal, and at the down stroke of the piston sufficiently raised and opened the bed of slate or of felspar to allow the particle of slate to pass through it and through the perforated bottom into the lower part of the trough, whence they were carried away. This method of washing had the effect of reducing the per centage of ash to about 3·6, and about 1,000 tons of coal per day could be washed in the plant described.

Stratford-on-Avon Waterworks.—Mr. Arnold Taylor, Local Government Inspector, has held an inquiry in reference to the purchase of land for the waterworks. The scheme was explained by Mr. Pritchard, C.E., of Birmingham.

THE DIAMOND FIELDS OF SOUTH AFRICA.

AT the meeting of the Institution of Civil Engineers on the 8th of April, Mr. Brunlees, president, in the chair, the paper read was "On the Diamond Fields and Mines of South Africa."

The author commenced by stating that Kimberley was situated in Griqualand West, about 700 miles north-east from Table Bay, and 450 miles inland from Port Elizabeth and Natal on the East Coast. Lines of railway were in course of construction from Table Bay and Port Elizabeth to Kimberley, and were about half completed. In Griqualand there were several diamond mines, the principal of which were Kimberley, De Beer's, Du Toit's Pan, and Bultfontein. In the Orange Free States there were also two mines, viz., Jagersfontein and Koffeyfontein, the first of which produced fine white stones. The mines were all divided into claims, the greatest number of which were to be found in the Du Toit's Pan Mine. Bultfontein came next. The deepest and most regularly worked was the Kimberley mine. The next deepest was De Beer's, which, however, was very unevenly worked. Then followed Du Toit's Pan and Bultfontein. The Du Toit's Pan mine ranked next in importance to Kimberley mine. Diamonds were first discovered in 1867 by Mr. O'Reilly, a trader and hunter, who visited a colonist named Van Niekirk, residing in Griqua. The first diamond, on being sent to the authorities, was valued at 500*l*. Considerable excitement was caused throughout the colony, and the natives commenced to look for diamonds, and many were found, among which was one of 83½ carats, valued at 15,000*l*. In 1868, many enterprising colonists made their way up the Vaal River, and were successful in finding a good number of diamonds. The centre of the river-diggings on the Transvaal side was Klipdrift, and on the opposite side Pniel. In all there were fourteen river-diggings. Du Toit's Pan and Bultfontein mines were discovered in 1870 at a distance of twenty-four miles from the river-diggings. The diggers took possession of these places. Licences were granted giving the first diggers a right to work. In 1871, De Beer's and Kimberley mines were discovered, and, in 1872, Mr. Spalding's great diamond of 282½ carats was found at the river-diggings. The mines were of irregular shape, and were surrounded by reef. The top reef was a loose shale, and had given great trouble from the frequent slips. Below this were strata of trachytic breccia and augite; the formation was then seamy to an unknown depth. Within the reef, the surface-soil was red, and of a sandy nature. The next stratum was of a loose yellow gravelly lime, and the third blue, of a hard slaty nature. This last was the real diamantiferous soil. Large stones had been found in the "yellow," but the working of this generally did not pay. Kimberley mine, however, had paid very well all through. The method of working in deep ground was determined by roadways running north and south. The soil was hauled up to these roadways, and taken to the sorting-tables. The roadways decaying shortly after exposure to the atmosphere, a system of hand-windlass was adopted, which worked very well for a time until horse-whims were introduced in 1873. The depth of the mines increasing, horsewhims had to give way to steam-engines in 1876. The first diggers treated on an average ten loads per day each party. At the present time, the least taken out by any engine, when fully employed, was 250 loads per day. The cost of working, with present appliances, the first 100 ft. in depth, was 3s. 6d. per load; the second 100 ft. (mostly blue), 5s.; the third 100 ft., 8s.; and the fourth 100 ft., 11s. Through scarcity of water a system of dry-sorting had to be resorted to for several years; but it was superseded by the introduction of washing-machinery, which was now generally employed. At the commencement, through inexperience, many serious mistakes were made. When the first diggers reached the bottom of the red sand, they thought no diamonds would be found in the next stratum. When, however, diamonds were found in the second stratum, the diggers had again to move the *débris*, and so also when the "blue" was reached. Some of the claims in the Du Toit's Pan and Bultfontein mines were irregular in shape. The other mines, however, had been properly and regularly laid out. One or two shafts had been sunk and connected with the mines by underground galleries. These galleries were convenient in the case of falls of reef. Labour, at first, was cheap; but from 20s. per month, wages rose to 30s. per week, and food. The yellow soil offered no difficulty in working, being loose and broken, but the blue soil required blasting. Several methods were adopted for extracting the soil and carrying it from the mine before steam was introduced. The cost of wood for heating purposes was a serious item, but good coal had now been found at 160 miles from Kimberley, costing 13*l*. per ton; another serious item of expense was the transport over natural roads only, costing from 18*l*. to 30*l*. per ton. The machinery designed by the author for this industry was described. In 1881, the author paid a visit to Kimberley, and found the industry a large one. The Post-office return showed the value of diamonds passed through the office in one year to be 3,685,000*l*. Illicit diamond traffic had hitherto been a source of great trouble at the Fields. It was a question whether this industry would ever cease; in any case there was no doubt but that it would last for over a century. It was believed that the main bed of diamonds had not yet been reached, and that the mines in operation were merely shafts leading to it. Now that the waterworks were finished, with a bountiful supply of water, coupled with the great boon of railways to the Fields, and the advantage of a law recently passed for the prevention of illicit buying, a great and prosperous future was in store for the diamond fields.

MOISTURE IN WALLS.

DR. W. HESSE, a district medical official at Schwarzenberg, has communicated to the technical press of Germany a simple process for the quantitative definition of the free water which may be contained in a wall. For the carrying out of this process it is necessary to have a number of small glass flasks with glass stoppers. These should be of about one-half to five-eighths of a cubic inch capacity and of known weight. A small portion of mortar sufficient to fill one of the flasks is taken from the internal surface of the wall by boring with a tool specially constructed, and also by scraping from the wall, a piece of paper being held underneath. After the removal of any large unporous particles, the flask is filled rapidly, and well closed with an india-rubber stopper. In the laboratory the flask itself, as well as the inner surface of the neck, is carefully dusted, the glass stopper is inserted and the flask weighed. It is then exposed in a drying-oven to a temperature of 212° to 230° Fahrenheit until the mortar is completely dry, this process usually taking several hours. The flask is then allowed to cool in an apparatus specially designed for the purpose and is again weighed. By deducting the weight of the vessel (as previously ascertained) the difference between the weight of the mortar before and after the drying is arrived at, and the percentage of moisture is thus established.

It is remarked that the mortar should not be exposed to the air more than absolutely necessary, and that consequently sifting is not to be recommended. In applying this test to inhabited rooms it is difficult to choose a spot for the trial referred to, and when any part of the wall is already broken such places can be utilised. As a general rule, such portions as are covered and are exposed to the sun's rays in summer or the heat of a stove in winter are to be avoided as not affording reliable data on the subject referred to. The best way, it is remarked, is to collect a number of specimens from the various walls of a room, taken at various heights, the principle of the test allowing of a number of trials being made.

From the results of numerous experiments made in his own district, Dr. Hesse has established the fact that walls of inhabited rooms (practically regarded as being dry) contain about 1 per cent. of free water, no matter of what composition the mortar may be. In Münich, the tests made by other scientific men prove that rooms more or less underground contain in their walls a proportion of moisture increasing with the greater depth arrived at. Thus near the ceilings in such case the quantity is less than near the floors, where the proportion is sometimes 15 per cent. or even more.

In his contributions to the press, Dr. Hesse has also referred to various facts of minor importance in connexion with his process. He acknowledges that it may not in all its details answer the requirements of analytical science but claims that it gives a practical man a method of carrying out easily and rapidly a great number of trials. The results arrived at are, he maintains, accurate enough to allow of the composition of walls being estimated in such a manner as to give some reliable *data* affecting the connexion between damp walls and the health of those who live in the rooms which they encompass.

THE MUNICIPAL IMPROVEMENTS AT COLOGNE.

WITHIN the past year one half of the middle portion of the building sites rendered available by the above works within the limits of the former boundaries, has been sold. In the last sale, the valuations were exceeded by 11 per cent. and the results as yet arrived at are said to have been much more satisfactory than could have been at one time expected. The bulk of the land sold has been acquired by inhabitants of Cologne.

As might be expected, building is being actively pushed forward in Cologne, and numerous structures of an ornamental character are being erected. Several plots of land which, on account of their proximity to the old fortifications, were of small value, have become choice building sites on account of the changes which are taking place. The works now in progress will, it is expected, be so far advanced before the conclusion of the building season that there will be a continuous line of houses between the old and new portions of the city.

Considerable progress has also been made with several sections of the new fortifications. Amongst the alterations proposed with respect to churches, special mention is made in the German press of the enlargement of St. Mary's Church in the Schnurgasse, as well as the internal decoration of the churches of St. Cunibert and St. Columba.

A monumental fountain is shortly to be erected in the Altenmarkt, of which the model has been on view in the Rathhaus. The design selected is that of Herr Albermann, of Cologne, whose monumental works at Bielefeld, Neuss, and Düsseldorf, have been approved by the public taste.

THE CAPE COLONY.

Two or three young fellows, discontented with their progress in London, are inquiring of us as to the probability of doing better "at the Cape." We cannot offer them any inducement to go thither; they had better stick to work steadily at home. A reliable correspondent, who has seen many ups and downs there, writing in April last, says:—"I am afraid there is very little probability of my making any change here at present, for never has the colony been known to be in such a deplorable state since '66; never were wages so low; never was there so little money to be handled. Business is at a complete stand-still, so much so that employers are discharging all hands but those absolutely necessary to carry on what little there is to be done. Consequently, what with the weekly influx of young fellows from England, who evidently labour under the impression that a fortune is to be picked up in the streets here (they soon discover their error), the whole colony is overflowing with men out of work, and quite unable to procure any either.

Even in the out-of-the-way place whence I write,—men,—gentlemen, too,—are continually applying to us for a bit of something to eat and a shake-down, many of them having tramped all the way from Durban,—170 miles,—in the vain hope of meeting with some employment, no matter what. The extraordinary variety of classes, all in the same sorrowful plight, is amusing, although shocking to see. Ex-officers, clerks (by the thousand), students, apprentices, mechanics; in fact, representatives of almost every profession and calling. It is terrible. Just fancy, an ex-commandant of an irregular volunteer corps,—a Cambridge graduate, too, of whom I saw a good deal during the Basuto war,—is now actively engaged in the neither dignified nor seemingly lucrative employment of cab-driving in P. M. Bay; plies between the railway station and the Crown Hotel, fare 1s! I hear it does not pay by any means, and that he intends changing his calling to that of a shoeblack, 3d. a shine! Such is life! What we want is another war, and if the Maritzburg

storekeepers were to send a deputation to stir the Zulus up a bit (they would not want much stirring), it would be the finest stroke of business they have done, or will do for many a long day."

NEW ST. MARY'S, BATTERSEA.

A NEW church in Albert-road, adjoining Battersea Park, was dedicated on the 5th inst. by the Bishop of Rochester. This is the fifth church designed by Mr. William White, F.S.A., at Battersea, for the Rev. Canon Erskine Clarke, the vicar. The title of "New St. Mary's" has been given to it with the view of its eventually becoming the parish church, in place of Old St. Mary's. It has been planned on a large scale, the extreme dimensions when finished being 180 ft. in length, and 105 ft. in breadth externally. The part now completed consists only of a portion of the chancel and south chancel aisle, which is eventually to serve for vestries. The sanctuary is separated from the chancel by a lofty arch. Both the chancel and its aisle are terminated eastwards with an apse, and around the apse of the chancel is an ambulatory, with an arcade of five arches, over which rise five lofty lancet windows. These windows, however, are only two-thirds of the height originally proposed, the design having been materially reduced on account of cost. There is a clearstory of two single lancets on each side of the chancel, each of them contained within a double-arched curtain rib. On either side of the sanctuary arch is a small arch connecting the chancel with the ambulatory, and over it is an open arcade connecting the sanctuary with the chancel. The walls and windows generally, and the arches and piers, are built of brick, with special-made mouldings, stone being used for the pillars, with carved caps and bases, some bands across the brickwork externally, and other details. The several kinds of stone used are the red Dumfries, the yellow Ham Hill, the green Wardour, and buff Chilmark. A corbel-table is carried round beneath the eaves of the roof. The ambulatory roof is vaulted in brick. In order to provide present accommodation for 400 persons, a temporary annexe has been built on to the west, and another to the north. The former is fitted with deal benches, which are proposed to serve for the permanent church, the remainder with chairs. Large accommodation is provided for the choir. The brick bases of columns at the east end show the future-finished level of the floor, which will rise altogether twelve steps from the nave. The depth of the foundation below the floor-level is from 12 ft. to 14 ft. The plan comprises a future "chapter-room" to the north-east for parochial and mission uses, conferences, and other purposes connected with the church.

DRY-ROT IN CITY CHURCHES.

ST. STEPHEN'S, WALBROOK.

SIR,—I am glad to see that a committee has been appointed by the Vestry of St. Stephen's, Walbrook, to take into consideration the state of the flooring of the parish church, and to prevent the extension of the dry-rot to the oak pewing. In 1881, whilst the internal repairs to the church were in progress under my supervision, I specially called the attention of the rector and churchwardens to the very seriously decayed state of the whole of the floors, and showed them that the dry-rot was gradually rising to the oak framing of the pews, and ere long would most seriously injure it if steps were not taken to remove the decayed work. By their direction I reported fully as to the means which should be adopted to prevent its spread, and at their request also gave an approximate estimate of the cost, but as the church had been closed for some considerable period, it was deemed desirable to defer the work for a time. In March, 1882, I again called particular attention to the matter in my paper on the present building, read before the St. Paul's Ecclesiological Society, pointing out the danger this fine work of Sir Christopher Wren was in. In May following I was again requested to report on its state. Since then I am pleased to find that my opinion has been endorsed in every respect by the report of Mr. Hansard, and whose approximate estimate of cost tallies exactly with the one I laid before the committee in 1881. It is pleasing thus to have one's views so entirely corroborated, but to me it is more particularly interesting to know that works are now to be executed which ought to have been done long since, and that means will be used to prevent the further inroad of so dangerous an enemy to the woodwork of the church. And if I may be permitted, I would urge upon the custodians of our other City churches the necessity of examining the floors and woodwork of the buildings in their care, for I fear that the church of St. Stephen is no exception; but in many cases, not only the floors, but the roofs also, will be found affected where the timbers are covered internally with plaster and externally with lead work.

THOMAS MILBOURN.

A PETRIFIED FOREST.

IN Sonoma County, California, a petrified forest has recently been discovered. It is situated on the estate of a large farmer, Mr. W. T. Hudson. One day as a nephew of that gentleman was out hunting he sat down to rest himself on what appeared to be the stump of an old tree. His attention was accidentally turned to the tree stump, and on examination he found that the material was completely petrified, that it was stone and not timber. Further investigation showed that similar petrifactions abounded throughout the neighbourhood. The grain of the original wood is still plainly visible, and there are plenty of indications showing that the trees from which the petrifactions have originated belong to the coniferous species. The stump on which the discoverer rested and made his discovery was 3 ft. 6 in. in diameter, and nearly 4 ft. high. The question of the origin of these petrified forests is one which is being discussed with interest by American geologists.

A JOINER'S SHOP AND ITS MANAGEMENT.

SIR,—There are "wheels within wheels" in the management of a workshop, of which employers, as a class, are by no means fully cognisant. It is presumed that the men are treated according to their merits as competent, expert, and reliable workmen. Unfortunately, the presumption is, in too many instances, totally erroneous. Favouritism largely prevails, to the detriment and direct injury of many thoroughly straightforward, industrious, and highly-competent artisans,—men, however, who prefer to "live through fear rather than through favour." It too often happens that foremen have their circle of acquaintances amongst the men employed in a firm, and in more than one instance it has been known for a foreman to accept "tips" from the men whom he has employed on his master's behalf. Also in the case of "improvers" receiving considerably more wages than they are worth in consideration of suitably "tipping" the foreman from time to time.

The foreman's favourites are certain to get the pick of the work, and if they happen to be very long over their jobs or make mistakes, all this is conveniently arranged by a little artful shuffling of jobs from one man to another. When it becomes necessary to discharge any of the men, the foreman takes particular care that none of his little circle of acquaintances are disturbed. The whole system is, of course, a thoroughly vicious and unfair one. Upon another point I would desire to call attention to the wholly unnecessary repetition of lines and sections when setting out on rods. A very considerable amount of time is absolutely wasted in this useless practice. Every machine-shop should have a "lift" from the mill or yard level to the upper shops. The absence of a "lift" implies a great deal of slow manual drudgery in carrying to and fro, up and down, the various materials and finished work. Greater attention should be paid to the proper seasoning, drying, shrinkage, &c., of work and material. For young joiners desirous of qualifying for responsible positions I would recommend the preparation of working drawings, plans, &c., pertaining to newel and open well staircases, and the projection of the rail from the plan in the case of a continued handrail; the various details in artistic doors and over-doors, mantelpieces and over-mantels, wainscotings and dados in the various styles; also the exact lines and cuts in a "hipped" roof, open Gothic, or Mansard, &c., pertaining to groined arches and niche coverings. To this end a good groundwork of practical geometry is absolutely essential.

M. A. F.

BUILDING PATENT RECORD.*

APPLICATIONS FOR LETTERS PATENT.

2,282. T. J. Constantine, London. Open fire portable cooking-range. May 4, 1883.

2,293. H. J. Haddan, London. Compound for rendering wood, &c., fire-proof. (Com. by L. Gimenez & J. Yrigoyen, Pamplona, Spain.) May 5, 1883.

2,303. S. C. Overton, London. Producing mural ceiling and other architectural hangings, decorations, &c. May 7, 1883.

2,305. S. Fisher, London. Manufacture of wall-coverings. May 7, 1883.

2,321. B. Hess, Bayreuth, Germany. Manufacture of artificial stone, &c. May 8, 1883.

2,352. E. S. Shepherd, London, and J. L. Aspinwall, Nanttle-vale. Manufacture of artificial stone and cement. May 9, 1883.

2,374. W. Wright & T. Holmes, Birmingham. Construction of garden frames. May 10, 1883.

NOTICE TO PROCEED

has been given by the following applicants on the date named:—

May 8, 1883.

55. M. Kellow, Merioneth. Cutting and dressing stone. Jan. 4, 1883.

254. A. Frank, Charlottenburg, Prussia. Manufacture of porous silicious material for building, &c. Jan. 16, 1883.

406. A. Bruckner, London. Material for carpet-lining. Jan. 25, 1883.

May 11, 1883.

74. J. Betjemann, London. Fire-screens. Jan. 5, 1883.

102. G. D. Peters, London. Facilitating the action of spring-rollers for window-blinds. Jan. 8, 1883.

152. W. P. Thompson, Liverpool. Hydraulic and other cements, mortar, artificial stone, &c. (Com. by MM. R. Bosse and P. E. Freise, Brunswick, Germany.) Jan. 10, 1883.

414. G. Coates and A. Coates, Rawtenstall. Grinding, polishing, or facing stone, slate, &c. Jan. 25, 1883.

1,802. P. M. Justice, London. Brick-making machinery. (Com. by C. Chambers, Philadelphia, U.S.A.) April 10, 1883.

1,821. T. J. Baker, Newark. Chimney-tops and ventilators. April 10, 1883.

2,242. F. G. Glaser, Berlin. Apparatus for catching soot from smoke in chimneys. (Com. by C. A. Petzold, Berlin.) May 2, 1883.

ABRIDGMENTS OF SPECIFICATIONS.

Published during the Week ending May 12, 1883.

4,138. G. Nobes, London. Deodorising and disinfecting apparatus. Aug. 30, 1882. Price 6d.

This consists of a tank holding the disinfecting fluid, which is connected with the supply cistern, and on operating the valve or discharge-pipe of the latter a certain proportion of the disinfectant mixes with the water.

4,423. W. R. Lake, London. Composition for the preservation of wood, stone, &c. (Com. by A. Bugolich and P. K. Smith, Melbourne.) Sept. 16, 1882. Price 4d.

This can be used as a paint, and consists of oil perfectly refined, and shellac, resin, powdered white and blue vitriol, chromate of potash, crushed bees'-wax, and crushed garlic, which are added to the oil when the latter is near the boiling point.

4,430. J. Imray, London. Water-closets. (Com. by R. H. Lecky and J. Hay, Pittsburg, U.S.A.) Sept. 18, 1882. Price 6d.

The pan of the closet is made in one piece, with the service cistern at the side of it. The bottom valve is inclined downwards, and is worked by toggle levers. The water from the cistern enters the pan through apertures in its neck.

4,438. J. W. Andrews, Whittlesea. Blind roller furniture. Sept. 19, 1882. Price 6d.

A lever is pivoted between two lugs formed on the blind roller bracket, and the cord, after being wound a suitable number of times round the end of the blind roller, passes over a roller in the upper end of the lever, and down behind the same. The lever is so formed that the cord can be jammed between the lower part thereof and a bevel on the face of a bracket, and when the weight of the blind comes on the top of the lever the cord is jammed in this place. A releasing cord is attached to the lower end of the lever, by which it can be pulled away from the face of the bracket, and the cord allowed to hang free, so that the blind can be rolled up or let down.

4,462. J. McPhail, London. Chimney-tops, &c. Sept. 19, 1882.

The chimney top has two outlets, which branch off at opposite angles from the main shaft. Each outlet is cut off at an angle of 45 degrees. Above the centre, between these two outlets, is pivoted a double cover fitted with vanes, so that when the wind strikes one of them it is immediately closed down over the weather outlet, leaving the other one wide open.

* Compiled by Hart & Co., Patent Agents, 186, Fleet-street.

THE SCULPTURE FOR ST. GEORGE'S HALL, LIVERPOOL.

WE understand that Mr. Stephens Lee, the sculptor whose designs for the bas-relief panels at St. George's Hall were selected in competition some time ago, has received final instructions to proceed with the work, for which he is to receive 5,000*l*. This, however, is subject to the first example being perfectly satisfactory, as the Town Council reserve the power of determining the contract at that stage.

THE LAND TAX.

AN interesting paper was read by Mr. W. E. Evans, at a general meeting of the Surveyors' Institution, on the subject of "The Land Tax: its Assessment and Redemption."

The tax, he said, appears to have had its origin in the feudal system which prevailed in the reign of Henry II. In 1798 a scheme for the redemption of the tax was introduced, and the tax, which had hitherto been annually voted, was made perpetual, subject to redemption, to enable the plan to be carried out. The tax is levied on all quit-rents arising from manor, lands, tenements, quarries, mines, mills, works, woods, tithes, tolls, and all hereditaments situated in the parish. In places where the tax is properly assessed, the poor-rate is usually taken as the basis. The proportions payable by each county and town are fixed by the Act; and these quotas are subdivided into quotas for divisions, and these again for parishes. The quota for each parish cannot be varied; consequently the incidence of the tax, which originally was theoretically, if not practically, equal, has, owing to the much greater development of property in some places than in others, become very unequal, the rate necessary to raise the quota varying in parishes in large towns from ¼d. to 2s. in the pound, and in agricultural districts from about 2½d. to 1s. The collectors are not, if practicable, to exceed the quota; but if from the increase of the value of property the assessment cannot be apportioned at any equal pound rate without exceeding the quota, or if from any unavoidable cause the assessment exceeds by 5*l*. or upwards the amount required, the excess is to be applied to the redemption of a part of the tax chargeable upon the parish, the net quota being reduced by the amount redeemed. The price of redemption was originally the purchase of so much stock in the Three per Cents. as would yield a dividend of one-tenth more than the amount of tax to be redeemed; this price has since been reduced, and the terms now are that the money to be paid, or stock to be transferred, must be sufficient to yield an interest or dividend less by 17½ per cent. than was required by the Act 42 Geo. III. c. 116. For instance, supposing the land tax to be redeemed is 10*l*., and the price of stock par, the money payment would be 366*l*. 13s. 4d., less 17½ per cent., or 302*l*. 10s., being 30¼ years' purchase. The exact sum actually to be paid depends on the price of stock in the second week after the date of the contract. The consideration for redemption can be satisfied in several ways. Firstly, by transfer of stock to answer the whole consideration at one time, or by instalments within two years; by payment in money in one sum, or by four equal instalments within two years; by transfer of stock by instalments exceeding two years, but not exceeding 16 years, no instalment to be of a less amount than 100*l*. stock; or by payment in money in similar instalments, no instalment being less than 60*l*. The money is paid to the receiving officer of the district, and the land tax is exonerated from the quarter day preceding the day of payment. The land tax can be redeemed by those in possession or by those in remainder, reversion, or expectancy; in fact, by any person having an interest in the premises. It will be evident that it is always advisable to redeem the tax on any land which it is probable will at a future time develope in value more rapidly than other land in the same parish; as, for instance, a part of a parish in such a situation as to be likely to become building land, or under which mines are supposed to exist. On the other hand, upon house property, or other fully-developed property, on which the land-tax is already properly assessed, it is not generally desirable to redeem, if there is any undeveloped property still remaining in the parish, the increase of value of which may in future years reduce the pound rate; but the extinction of the charge may be by some considered an equivalent for any possible future small decrease in the amount. Mr. Evans thinks it worth consideration whether a scheme for the compulsory redemption of the tax might not be desirable.

CHURCH-BUILDING NEWS.

Balderton.—The parish church of Balderton, near Newark, was reopened on the 4th inst., after restoration. The project of restoring the building was set on foot by the Rev. F. V. Bussell, vicar of the parish, shortly after his appointment to the living in the year 1879, and the onus of the work has fallen upon his shoulders. The outlay has been upwards of 3,090*l*. In November, 1881, the committee invited tenders for the work, plans having been drawn up by Mr. James Fowler, architect and diocesan surveyor of Louth. Mr. S. B. Burton, of Newcastle-on-Tyne, was selected to carry out the work of restoration, and in February, 1882, operations were commenced and continued up to May, 1883, a period of fifteen months. The cost of the work has been as follows:—Nave and tower, 2,570*l*.; chancel, 520*l*.; making a total of 3,090*l*. In addition to the above sum a new clock has been placed in the church tower by Messrs. Potts & Sons, of Leeds. The church is an exceedingly interesting building from the variety of its architectural features, its antiquity, and the particular beauty and goodness of the earlier work. It consists of a nave, and north and south aisles, with porches to each; a western tower and spire, and a chancel with north aisle or chapel, extending about half its length. The north porch and south doorway are now the only remains of the original Norman church, and, judging from the ornate character of the former, the church must have been one of considerable architectural beauty. This has been restored as a memorial to the late Mr. G. Harvey. On the inside there is an arcade of five arches on each side, the central one in each forming a window. These are filled with stained glass, the western one representing St. Giles, the eastern one Christ, the Good Shepherd. The western part of the north aisle has been entirely rebuilt, and a new window placed west of the porch, where originally there was a lack of light. This has been filled with stained glass by Mr. W. D. Warwick,—"In memory of a little child." This window has been carried out by Mr. Daniel Bell, of London, and represents the Saviour in the act of blessing a little child. The walls of the aisles and tower were found to be so greatly dilapidated, on the removal of the plastering, as to cause the whole of the facing to be cut away and rebuilt. This has been done in Ancaster stone. The church is but little altered internally, except in so far as the removal of the flat roof of the nave is concerned, and the erection of the new high pitched one to the original lines, which is a very great gain of effect both externally and internally. The walls of the nave have been cleaned and restored, and the pillars and arches repaired; some of the former have been rebuilt, and most of them have had new foundations. A chancel arch has been added in place of the old timber gable. The roofs throughout have been renewed in red deal, that to the chapel being part of the old roof of the aisle, retained for this purpose. The aisle roofs are remarkably flat, but for this Mr. Fowler is not responsible, as the outer wall fixed the height on one side, and the nave roof on the other. They are covered with lead, while the steeper roofs have a covering of green slate. The old fittings, which are of a remarkably massive character, as well as being of singular design, have been grouped into two blocks in the eastern part of the nave, the remainder of the church being fitted with similar seats, which, for want of funds, are at present unfinished. The old pulpit has been cleansed of its paint and restored, and is now made of use in the church—it is fixed on the north side of the nave instead of on the south, as before. A good lectern stands on the opposite side. The church is heated by hot air; the apparatus, supplied by Messrs. Haden & Son, of Trowbridge, is in a vault under the east end of the north aisle. The chancel screen has been in part restored, but a further outlay is necessary upon this. It is of a massive character, well moulded, and of very good design. The chancel is most altered in appearance of any part of the building. A new and larger arch has been opened to the chancel, and the organ has been removed from the south side of the chancel into the chapel, and new stalls of oak have been placed in it: these have carved poppy-heads and elbow-rests. An oak reredos has been placed at the east end by Messrs. Cox, Buckley, & Co., and a new arched timber roof surmounts the whole. The whole of the ancient slabs have been relaid in the floors, and the remainder laid with plain tiles.

Sedgley.—After undergoing extensive alterations, the ancient parish church of Sedgley was re-opened for Divine service on the 11th inst. The church has been closed about three months, during which period the side galleries have been removed, the west gallery has been extended, the nave and chancel have been paved with encaustic tiles, the body of the church and the gallery reseated, and the whole of the fabric has been cleansed and painted. The organ has been removed from the west gallery, and when restored by Messrs. Nicholson & Lord, of Walsall, will be erected in the chancel. The improvements have been carried out at a cost of 1,200*l*. The sacrarium has been decorated by Mr. Walter Eggington, and through the efforts made by several lady members of the congregation some very handsome furniture has been secured for the sacrarium. The architect was Mr. A. P. Brevitt, and the contractor was Mr. John Hilton. The heating apparatus has been erected by Messrs. Evans & Co., of Wolverhampton.

Prestwich.—The work of strengthening the tower of this church is rapidly approaching completion. The most difficult and anxious part is complete, viz., undermining the foundation and substituting one of concrete, and the men engaged are now employed in taking out faulty stones from both sides of the tower walls and replacing them with new blocks, after which the walls will be pointed and the rehanging of the bells take place. For the latter event preparations are already taking place, the timbers upon which the bells used to hang being taken away and substituted by entirely new beams. The restoration is not confined to the tower, but extends to the roof and walls of the church, which are undergoing an extensive renewal.

Peckham.—On the 11th inst. the Ven. Archdeacon Richardson laid the foundation-stone of St. Mark's Church, Peckham. The site of the church is in Harder's-road, Queen's-road. The building, which will consist of a nave and two aisles, is intended to be built of red brick, with stone dressings. It will be provided with an organ-chamber, a vestry, and a heating-chamber under the vestry. The style is Early English. The total length of the church will be 114 ft. 6 in., and the width 67 ft. Mr. Charles Luck, Carlton-chambers, Regent-street, is the architect, and the building contract,—which exceeds 7,000*l*.,—has been undertaken by Mr. Manley, of St. George's-road, Regent's Park.

Stalmine.—It isi ntended to shortly proceed with the restoration of St. James's Church, Stalmine, Poulton-le-Fylde, Lancashire. In addition to other works, a new chancel, west gallery, &c., will be provided, and carried out from the plans of Messrs. Paley & Austin, of Lancaster.

Rochdale.—It has been decided, by a meeting of parishioners, to carry out various alterations in the fabric of St. Chad's parish church, Rochdale. These will comprise the extension of the church eastward, two bays being added, the erection of a clearstory in the chancel, the provision of a handsome new organ, &c. The extension will be carried out from plans prepared by Mr. J. Crowther, architect, of Manchester. The church was restored in 1857.

DISSENTING CHURCH-BUILDING NEWS.

Wandsworth.—The foundation-stone of the Lavender-hill Congregational Church has been laid. It is five years since the site for this church was purchased by the London Congregational Union. A commodious lecture-hall, with class-rooms, was built upon it, mainly by the efforts of the Rev. J. Guinness Rogers, B.A., and his friends at Clapham. The new church will adjoin the lecture-hall and school. Mr. T. Heygate Vernon is the architect of the church, which will cost 7,000*l*.

Stourport.—The memorial-stones of a Baptist Chapel were laid at Stourport on the 16th inst. by Mr. E. Baldwin, M.P., and Mr. J. P. Harvey. The building will be of Gothic design, and it is intended to accommodate 300 persons. The

builders are Messrs. Smallwood & Co., of Henley-in-Arden; and the architects are Messrs. Ingall & Hughes, of Birmingham.

STAINED GLASS.

Birmingham.—The east window in the chancel of St. Nicholas's Church, Tower-street, Birmingham, has just been completed. It contains the subjects of the Crucifixion, the Agony in the Garden, and the Betrayal, which are supported by light bases, in the centre of which are the Apocalyptic beasts, with the Agnus Dei as the central feature, and are placed underneath light canopies. In the tracery our Lord sits in majesty, adored by angels. The window was designed by Mr. T. W. Camm, and executed by Messrs. R. W. Winfield & Co., successors to Camm Bros., Birmingham and Smethwick. An aisle window, as a memorial to the late Mr. Mayou, is also executed by the same firm, the subject being the Raising of Lazarus, which occupies the centre of the three lights.

Calverley, Yorks.—A three-light decorated painted glass memorial window has just been erected in the antique church of this parish,—the situs of the celebrated "Yorkshire tragedy." The subjects are, centrally the Ascension, and on either side the Nativity and the angel announcing the Lord's resurrection to the Marys. The groups are richly treated, but are surmounted by very delicate white canopies, with enriched bordures and base. The window is in memory of deceased members of the family of Mr. Joseph Gant, of Greenhill House, Bradford, Messrs. Powell Bros., of Leeds, being the artists.

Hubberholme Church, Yorkshire.—In commemoration of forty-seven years' faithful service in spiritual charge of this parish, a painted glass window has just been erected in the church to the memory of the late Incumbent, the Rev. Wm. Richardson Metcalfe. The cost was defrayed by the parishioners and the deceased's successor the Rev. E. W. Brereton, M.A. The subject (occupying the three lights) is Christ's Charge to St. Peter. The window is by Messrs. Powell Bros., of Leeds, the treatment being in the late decorated style.

Books.

Electric Illumination. "*Engineering*" Series. Edited by JAMES DREDGE. Vol. I. London: Office of *Engineering*, 1882.

THE editor of this excellent record of the progress of electric lighting says truly that there is no industrial question which has engrossed, and is still engrossing at the present time, so much public attention. The extensive employment of this mode of illumination in streets and other places of public resort, as well as in private houses, has familiarised the world with its leading characteristics, whilst the electrical exhibition, at Paris and Munich, and in this country at the Crystal Palace and the Aquarium, have given a fair idea of the almost endless variety of mechanical combinations by which, with more or less success, the electric light can be obtained. The forthcoming exhibition at Vienna will still further add to our knowledge on so interesting a subject. In treating it in the work before us, Mr. Dredge has principally drawn from the pages of *Engineering*, which journal was one of the first to recognise it as one of the most important matters from an engineer's point of view, by freely opening its pages to the subject. The editor has been most ably assisted in his task by men familiar with it. Mr. Conrad Cooke, one of his collaborateurs, was the first to practically apply the electric light by installing it as a beacon on the summit of the Clock Tower of the Houses of Parliament. Professor Silvanus Thompson has explained in the simplest possible language, and yet without any sacrifice of scientific accuracy, the principles which govern the conversion of mechanical into electrical energy; in other words, the mechanical production of electric currents. He has also analysed the subject in a somewhat more advanced method. The chapter on the voltaic arc is written by Mr. M. F. O'Reilly, and contains a large amount of information, part of which has never before been published. The other chapters deal with generators, conductors, carbons, and arc, incandescence-arc, and incandescence lamps. An important part of the book, contained in an appendix, is that by Mr. W. Lloyd Wise, viz., the abstracts of patent specifications on subjects bearing on electric lighting. The history of what has been performed in this branch of science, as told in the book, would be quite sufficient to mark it as an important work. But it has been conceived and carried out in such a comprehensive spirit that we may confidently place it amongst the best books on the subject.

Miscellanea.

Stafford Post-Office.—For some time past the premises occupied by the Chief Post-Office at Stafford have been undergoing material alteration, and on the 8th inst. the new offices were opened to the public. The entrance is from the Bank-passage, and was formerly the private entrance to the postmaster's house. The public office comprises a room 20 ft. long by 15 ft. wide. Adjoining this room, and open from behind the counter at the Market-square end, is the stamping-room. The telegraph-room is situated on the first-floor. The ground floors are heated throughout by means of a hot-water apparatus, supplied and fixed by Messrs Rudge & Griffith. The plans were originally made by Mr. J. B. M'Callum (late borough surveyor), but during the progress of the work considerable alterations and variations had to be made to accommodate the parcels post requirements. The work has been carried out by Mr. A. F. Whittome.

A New Railway to Croydon.—A Select Committee of the House of Commons have unanimously passed a Bill authorising the construction of a new railway, commencing at Sanderstead, near Croydon, by a junction with the Croydon and Oxted branch-line of the London, Brighton, and South Coast Railway, now in course of construction, and terminating at Dulwich by a junction with the London, Chatham, and Dover Railway, over whose lines running powers have been granted into their Victoria, Holborn Viaduct, and intermediate stations. The construction of this line will give a new railway route to Croydon *viâ* the Chatham and Dover Railway; direct access into London over the authorised Oxted and Groombridge Railway; and a new route from London to Tunbridge Wells. It is intended to erect stations at Sanderstead, Hayling Park, Croydon, Mitcham-road, Thornton Heath, Norbury Park, Beulah Hill, and Norwood.

Inland Parcels Post.—The Postmaster-General has issued an official intimation that on August 1st he will be prepared to accept at any post-office in the United Kingdom parcels intended for transmission by the Inland Parcels Post, those exceeding 1 lb. in weight having to be prepaid 3d. in ordinary postage stamps; exceeding 1 lb. and not exceeding 3 lb., 6d.; exceeding 3 lb. and not exceeding 5 lb., 9d.; and exceeding 5 lb. and not exceeding 7 lb., 1s. The dimensions allowed for an inland postal parcel will be,—maximum length, 3 ft. 6 in.; maximum length and girth combined, 6 ft. Examples:—A parcel measuring 3 ft. 6 in. in its longest dimension may measure as much as 2 ft. 6 in. in girth,—*i.e.*, around its thickest part; or a shorter parcel may be thicker, *e.g.*, if measuring no more than 3 ft. in length, it may measure as much as 3 ft. in girth, *i.e.*, around its thickest part.

Wrexham Sewerage.—At a special meeting of the Wrexham Town Council on Wednesday evening last, under the presidency of the Mayor, Alderman Strachan, the Town-clerk reported the receipt of the sanction of the Local Government Board to the borrowing of the sum of 2,250*l.* for works of sewerage and sewage disposal, the works in question being undertaken to avoid a threatened action by the Chester Corporation for the alleged pollution of the Dee, and to settle the long-standing dispute between the Wrexham Town Council and Lieut.-Colonel Jones, the tenant of the sewage farm. Plans, specifications, and estimates for the work in question were then laid before the Council and approved of, and it was resolved to advertise for tenders for the construction of the works.

Exeter.—A life-sized statue in Portland stone has been carved by Mr. Hems, and placed in the niche in the main front of his new business premises. It is a statue of Art, and a creditable production. We understand that this is the first sculptured figure which has been erected in front of any public or private building in Exeter (or any church, save the Cathedral) for several hundred years.

Associations of Medical Officers of Health.—A combined meeting of the North-Western and Yorkshire Associations of Medical Officers of Health was held on the 11th inst. in the Manchester Town-hall. In the absence of Mr. Fox, Mid-Cheshire, president of the North-Western Association, Mr. Rayner, of Stockport, occupied the chair. Mr. R. Angus Smith, F.R.S. (Manchester), read a paper on "Water Analysis." Mr. F. Vacher (Birkenhead) contributed a paper suggesting the provision of tenement hospitals for infectious cases; and Mr. S. W. North (York) spoke of the need for greater detail in the census returns, so as to enable medical officers to ascertain the death-rate for small areas, and upon the necessity of improved supervision over the milk supply of large towns. Some discussion ensued upon the papers.

Water Supply of South London.—On the 26th ult., a Select Committee of the House of Commons, presided over by Mr. David Plunket, passed a Bill, promoted by the Lambeth Water Company, authorising the purchase of lands near Brixton-rise, and Crown-hill, Upper Norwood, on which lands it is proposed to sink wells and supply water therefrom. The Bill also sought powers to raise 375,000*l.* additional capital, but the Committee, in giving their decision, stated, that having regard to the report of the Committee on the London Water-Supply, they did not feel justified in allowing this company to raise any further capital, beyond what was absolutely necessary for the increasing demands for water in their district, and for this purpose they thought an increase in the capital of 75,000*l.* was sufficient.

Lichfield Cathedral.—Dr. Bickersteth, Dean of Lichfield, with reference to a suggestion made by the *Staffordshire Advertiser* as to the desirableness of general collections in every parish of the diocese in aid of the completion of the restoration of the west façade of Lichfield Cathedral, writes, "It has been suggested that an appeal to every parish in the diocese for aid towards raising this comparatively small sum for the completion of the beautiful façade of the mother church would be likely to meet with a favourable response, and if every parish in the diocese would contribute on the average only 2*l.* towards this work the desired object would be at once attained. If, unhappily, the needful funds for this purpose are not speedily supplied, the dean and chapter have no alternative but to suspend their almost finished work."

City Churches.—Mr. H. Wright, the hon. secretary of the City Church and Churchyard Protection Society, has addressed a letter to the Bishop of London, in which he says that the council of the society hears with great regret "of the proposal to desecrate the Church of St. Olave, Jewry, and to sell the site." The small attendance at the City churches he attributes, in great part, to the non-residence of the rectors, many of the rectories being let for offices. Mr. Wright goes on to say that there is "a reasonable possibility that there will be a return of population to the City," and that it is notorious that many of the new churches built out of the proceeds of the demolition of City churches under the Act of 1860 are very empty. The City churches, he says, have not had a fair chance.

School Board School at East Dulwich. On the 7th inst. a new Board school was opened in the Heber-road, East Dulwich, by Mr. G. C. Whiteley, one of the members of the School Board for London. The building has accommodation for 1,038 children, viz., 310 boys, 310 girls, and 418 infants. The cost of the site has been 2,460*l.*, and the cost of the building was 11,174*l.*; so that the total cost of building and site has been 13,634*l.* This amounts to a cost per head of the children accommodated of 13*l.* 2s. 8d. Mr. E. R. Robson is the architect of the school.

Land at Darenth for the Asylums Board. At the meeting of the Metropolitan Asylums Board on Saturday last, Sir E. Currie moved, "That, subject to the approval of the Local Government Board, the offer of Mr. J. I. Morton to sell to the managers 134 acres of land, adjoining the Board's property at Darenth, and known as the Gore Estate, for hospital purposes, at the sum of 13,175*l.* be accepted." Dr. Fowler seconded the motion, and it was carried.

Manchester Cathedral Restoration.—At a meeting of the churchwardens, held on Tuesday last, it was announced that the Dean of Manchester had forwarded a contribution towards the restoration fund of 500*l.*, which he had received from the Duke of Buccleuch.

Artisans' Dwellings for Liverpool.—At a meeting of the Liverpool City Council, on the 9th inst, Mr. T. Hughes moved that the Local Government Board be requested to approve of the undertaking by the Council of the rebuilding of the houses on part of the land forming the site of Nash-grove, cleared under the Artisan' and Labourers' Dwellings Improvement Act, 1875, and that the Board be also requested to dispense with the condition that the dwellings shall be sold. Mr. Hughes said it was quite clear that, having to spend 40,000*l.*, the Council would not like to have imposed upon them a condition that the buildings should be sold in ten years.—Mr. J. B. Smith seconded the motion, which was carried.—Mr. T. Hughes next moved that the modified plans for the erection of dwellings upon the Nash-grove site, submitted by the engineer, be approved subject to certain further modifications as to the materials proposed to be used.—Mr. J. B. Smith seconded the motion.—Sir James Picton thought they ought to know more as to the details of the buildings. He would point out that all sanitary and economic conditions showed that just in proportion as they had the population thick upon the ground would the death-rate be large. They would find that in a few years the death-rate on these premises and the sanitary condition would be a very serious blot upon the city. A good many years back cottages were built at Birkenhead much upon the same principle, and they were held up at that time as model cottages. Now, if anyone went and looked at them, they would say the buildings were a disgrace to modern civilisation. In dwellings of this kind it was impossible to induce the same attention to sanitary conditions as they could in the case of people of a higher grade, and, therefore, he thought the committee were making a dangerous experiment. Mr. Yates said that the Birkenhead cottages arose from the action of some speculators, and because they proved a failure it was no argument against a public movement emanating from a sanitary authority. The committee had given the subject a good deal of attention, and considered it would be beneficial to the community and the Corporation to put up these buildings. The recommendation was agreed to.

New Zealand Timber Supply.—The United States Consul at Auckland, writing on the trade and industry of New Zealand, says it is estimated that the forests of New Zealand cover an area of not less than 20,000,000 acres, the forests on the Crown lands alone being estimated at 10,000,000 acres; about 5,000,000 acres are the private property of the white or European population, and the remainder is by the Maori, or native inhabitants. Among the many descriptions of timber grown, the *Kauri* pine is considered one of the most valuable; it is found only in the province of Auckland, and in that district it does not exist further south than the East Cape, and like the cedar, it is confined to the vicinity of the sea. The kauri forests cover about 60,000 acres of Crown land, and about 120,000 acres of private property. The trees often grow to a height of 200 ft., and measure from 12 ft. to 30 ft. in circumference; they are discovered occasionally with a rugged surface, and on being cut, the grain is found to be mottled. The kauri is exported largely in what is called "junk," the logs being squared with an axe, thus wasting a quantity of good timber. The annual output of kauri timber is about 110,000,000 ft., and the highest estimate of the amount of timber left in the kauri forests is 23,000,000,000 ft. The subject of conserving the kauri forests is at the present time attracting considerable attention throughout the colony, not only on account of the excellent timber it produces, but on account of the gum which exudes from the tree, and which for many years has formed the most valuable article of export of the province of Auckland.

The Corporation and Coulsdon Commons. The Coal and Corn and Finance Committee, on behalf of the Corporation, will take possession of Coulsdon Commons, and the ceremony of dedication will take place on Saturday, the 19th inst. It is understood that the Lord Mayor will request the Right Hon. G. J. Shaw-Lefevre, the First Commissioner of her Majesty's Works, to pronounce the words of dedication, and that a portion of the day's proceedings will be undertaken by the Lady Mayoress and other ladies. These commons add between 300 and 400 acres to the open spaces secured by the Corporation for posterity. —*City Press.*

Chimes, St. Mary's Church, Kidderminster.—The completion of the restoration of the church and the inauguration of the chimes, was celebrated on the 11th ult., by a banquet at the Town-hall, Kidderminster. For a long time the tower of the church has been in a dangerous state, and the bell-ringers have from time to time called attention to this. No definite steps, however, were taken until at a vestry meeting on March 2nd, 1882, at which the vicar presided, it was resolved to try and raise 1,000*l.* for repairing the tower and re-hanging the bells. On the same day the present Mayor (Mr. G. W. Grosvenor), was, at a meeting of Freemasons, elected Worshipful Master of the Lechmere Lodge of Freemasons. The connexion between these events will be more apparent when it is stated that the Mayor has since been the originator of a movement which has led to the Freemasons of this district presenting the church with a valuable set of chimes. The old peal of eight bells has been re-hung in a strong oak frame, with entirely new fixings, and three new bells have been added for the chimes, the whole of this work being carried out by Messrs. John Taylor & Son, bell-founders, Loughborough. The clock has been repaired, and refixed with new copper dial on the south front, and the old wooden one on the west front. A set of carillon chimes have been presented by the Freemasons of the town, which will play at every third hour, and are set upon the eleven bells, having a change of three barrels, two of which contain fourteen secular tunes, and the third seven sacred tunes. The old ting-tang quarters have been replaced by the Westminster chimes, and there is also a barrel for chiming 182 changes and rounds on the eight old bells. This work has been satisfactorily carried out by Messrs. Lund & Blockley, of Pall-mall, London. The cost of repairs for the tower and re-hanging the bells and the work to the clock is about 960*l.*, and that of the chimes (which is borne by the Freemasons) about 250*l.*

The Fairless Barber Memorial. — In memory of the late Mr. Fairless Barber, a prominent member of the Yorkshire Archæological Society, who was born at Rastrick, Yorks., in 1835, and died in 1881, a painted glass window has just been erected in Rastrick Church. The approved selection of subject by Messrs. Powell Bros., of Leeds, to whom the commission for the window was confided, is the laying the foundation-stone of the second or restored Temple at Jerusalem, as set forth in Ezra iii. In the decorated work above are two angels, one on each side, bearing a riband with the legend text, "The foundation of the house of the Lord was laid." In the base is the usual dedicatory inscription. The ornamented bordures and the treatment generally are in accordance with the church architecture, in the style of the Italian Renaissance.

A Memorial.—Soon after the notice of the death of the Rev. Arthur Rigg, which appeared in your columns, a few of his old pupils decided to erect a memorial to him. The memorial consists of a marble medallion, which has been skilfully worked out by Mr. J. S. Westmacott, sculptor, of 49, High-street, Eccleston-square. The committee would be very pleased if you could mention the fact, as the memorial is partly due to your article.—SAMUEL WORSSAM.

Prevention of Fires.—A public meeting will be held at the Society of Arts on the subject of the prevention of fires in theatres. The report of a committee of the Society which has for some time been investigating the question, will be brought before this meeting for its consideration. The precise date has not yet been decided, but it will be held the end of the present month. Further particulars will appear in future numbers of the Society of Arts' *Journal.*

The Skegness Public Baths, in Lincolnshire, which have been erected by a Limited Company, at a cost of 3,000*l.*, were opened on Whit Monday. They consist of hot, cold, Turkish, swimming, fresh, and salt baths, and will doubtless form a great addition to the attractions of this rising watering-place.

TENDERS.

For the erection of a country residence at Curdridge, Hants, for Mr. W. A. Way. Mr. T. Fleming, Waverley House, Southsea, architect:—

Light, Portsmouth	£1,735	0	0
J. Sign, Bishop's Waltham	1,648	19	0
W. Ward, Portsmouth	1,625	0	0
Green, Meonstoke	1,444	0	0
Stevens & Son, Southampton*	1,425	0	0
J. Howard, Portsmouth	1,383	0	0

* Accepted.

For alterations to the Lord Nelson public-house, Poplar. Messrs. Wilson, Son, & Aldwinckle, architects, 2, East India-avenue. Quantities supplied:—

Canning & Mullins	£2,297	0	0
Cox	2,245	0	0
Hearle	2,195	0	0
Mills	2,117	0	0
Hall, Beddall, & Co.	2,080	0	0
Staines & Son	1,984	0	0
Shurmur	1,944	0	0
Beale (accepted)	1,735	0	0

For Boys' Industrial Home, Forest-hill. Mr. Thos. W. Aldwinckle, architect, 2, East India-avenue:—

Pratt	£1,990	0	0
Stark	1,955	0	0
Palmer	1,950	0	0
Amer	1,890	0	0
Taylor & Son (accepted)	1,728	0	0

For alterations to the Green Man public-house, Stratford. Messrs. Wilson, Son, & Aldwinckle, architects, 2, East India-avenue. Quantities supplied:—

Staines	£1,340	0	0
Hearle	1,333	0	0
Beale	1,317	0	0
J. & H. Mills	1,268	0	0

For alterations to the Cabin public-house, Rochester-row, Pimlico. Messrs. Wilson, Son, & Aldwinckle, architects, 2, East India-avenue:—

Hearle	£773	0	0
Cox	715	0	0
Palmer	672	0	0
Canning & Mullins	658	0	0
J. & H. Mills (accepted)	639	0	0

For alterations to the Edinburgh Castle public-house, Strand, exclusive of pewtering. Messrs. Wilson, Son, & Aldwinckle, architects, 2, East India-avenue. Quantities supplied:—

Sage	£1,895	0	0
Drew & Cadman	1,590	0	0
Canning & Mullins	1,520	0	0
Cox	1,520	0	0
Lascelles	1,510	0	0

For lavatory, &c., at the Old Lambeth Workhouse. Mr. Thos. W. Aldwinckle, architect:—

Cook	£200	0	0
Hearle	165	0	0
Crabtree	151	0	0
Brockwell	149	10	0
Mills (accepted)	144	0	0

For warming, by their new hydro-caloric apparatus, the main block of Haileybury College, Herts. Mr. C. B. Trollope, architect:—

J. Weeks & Co., Chelsea (accepted).

For finishing three houses, Upland-road, East Dulwich, for Mr. J. Marsden. Mr. Joseph Harris, architect:—

Clements	£490	0	0
Parrish & Hawker (accepted)	399	0	0
Cannell	370	0	0

For the erection of a tower, spire, gallery, staircases, &c., Barry-road Chapel. Mr. Charles Bell, architect. Quantities by Mr. Henry Lovegrove, Budge-row:—

Belham	£3,564	0	0
G. Green	3,555	0	0
Booth Bros.	3,525	0	0
Woodward	3,490	0	0
Staines & Co.	3,444	0	0
Eldridge & Co.	3,403	0	0
R. & J. Pickersgill	3,360	0	0
J. & C. Boyer	3,278	0	0
G. Goad	3,262	0	0
Allen & Sons	3,200	0	0
Holliday & Greenwood	3,095	0	0
Morter	3,050	0	0
Gregar	2,993	0	0
Smith & Sons, Norwood (accepted)	2,987	0	0

For the erection of Congregational Church, Steeple Bumpstead. Mr. Charles Bell, architect. Quantities by Mr. Henry Lovegrove:—

H. Cocks	£2,245	0	0
J. F. White	2,166	0	0
F. Alderton	2,009	0	0
Mason & Son	1,870	0	0
J. Bread	1,855	10	0
J. Choat	1,850	0	0
Gower & Son	1,798	0	0
J. & A. Brown	1,798	0	0
Marcus Brown	1,750	0	0

Amended tender, after sundry alterations:—

J. & A. Brown (accepted)	1,468	0	0

For alterations, additions, and repairs to premises at Edenbridge, Kent. Mr. Robert Ridge, Katherine-street, Croydon, architect:—

Jordan, Edenbridge	£379	0	0
Legg, Croydon	295	0	0
Head, Lingfield	278	0	0
Maides, Croydon	257	0	0

For additions to "Elmwood," Hackbridge, Surrey, for Mr. A. H. Smee. Mr. Richard Creed, architect:—

Stewart, Wallington (accepted) £324 0 0

For rebuilding No. 16, Cheapside, Luton, Beds, for Mr. Chas. Lenton. Mr. Richard Creed, architect:—

Smart Bros., Luton (accepted) £485 0 0

For certain works at Edge Grove House, Aldenham, for the Rt. Hon. Lord Rendlesham. Mr. T. Searancke Archer, architect:—

Jas. Burnell (accepted).

For alterations, &c., at No. 59, St. James's-street, for Messrs. Barton & Co. Mr. T. Searancke Archer, architect:—

Messrs. Bywaters (accepted).

For alterations and additions to Wade Court, Havant, Hants. Mr. M. N. Inman, architect:—

J. Snewin, Littlehampton-on-Sea* £545 0 0

* Accepted.

For the erection of a new Wesleyan Chapel at Redfield, Bristol. Mr. Robt. Curwen, architect, 103, Palace-chambers, Westminster:—

Sharp & Graham, Bristol	£3,165	0	0
Estabrook & Sons	2,820	0	0
J. E. Davies, Bristol	2,773	0	0
Howell & Sons, Bristol	2,750	0	0
Cowlin & Son, Bristol	2,675	0	0
R. J. Crocker, Bristol	2,651	0	0
G. Humphreys, Bristol	2,639	0	0
W. Veals	2,594	0	0
Lewis & Edbrooke, Bristol	2,500	0	0
Harding & Vowles, Bristol	2,490	0	0
Wilkins & Sons, Bristol	2,470	0	0
W. Church, Bristol (accepted)	2,379	0	0
Walters & Son, Bristol	2,350	0	0

For building three shops in Chapel-street, Somers-town, for Mr. Hummeraton. Messrs. Saville & Son, architects:—

Lamble (accepted)	£1,490	0	0

For alterations and repairs at No. 31, Stibbington-street, Somers-town, for Mr. G. Smith. Messrs. Saville & Son, architects:—

Hawkins	£487	0	0
W. Hawkins	393	0	0
Wicks	367	0	0
Lamble	359	0	0
Spencer & Co.	295	0	0
Royal	293	10	0

For alterations, &c., at the Old Foresters, Kender-street, Queen's-road, Peckham, for the New Westminster Brewery Company. Mr. H. W. Budd, architect:—

King & Son	£385	0	0
Pemberton	370	0	0
Bull	360	0	0
Lamble	359	0	0
Puck & Co.	355	0	0

For new schools and master's house at Pantygasseg, for the Trevethin School Board. Mr. E. A. Lansdowne, architect. Quantities by the architect:—

Bailey & Jones, Pontypool	1,695	0	0
Morgan & Evans, Pontypool	1,425	0	0
Parfitt, Pontnewydd	1,330	0	0
Foster, Abergavenny	1,275	0	0
Chapman, Pontypool	1,136	14	0
Burguoyne, Pontypool (accepted)	1,080	0	0

For the erection of a new Wesleyan Chapel at Shanklin, Isle of Wight. Mr. Robert Curwen, architect, 103, Palace-chambers, Westminster:—

F. Cooper, Shanklin	£2,403	0	0
J. Burton, Ryde	2,196	0	0
G. Hayles, Shanklin	2,180	0	0
J. Newnham, Ventnor	2,005	0	0
Ingram & Son, Ventnor	1,970	0	0

For additions and alterations to No. 11, Finsbury-square. Messrs. Wm. Reddall & Son, architects, 10, South-street, Finsbury. Quantities supplied:—

Pritchard	1,814	0	0
Atkinson	1,650	0	0
Woodward	1,627	0	0
Colls & Sons	1,620	0	0
Burt	1,530	0	0
Wood	1,410	0	0

Proposed infant school, Wouldham, Kent. Mr. E. W. Stephens, architect, Maidstone, Kent:—

Burgess, Snodland	£800	0	0
Naylar & Son, Rochester	787	0	0
Wallis & Clements, Maidstone	755	0	0
Gates, Frindsbury	740	0	0
West, Strood	735	0	0
Avard, Maidstone	733	0	0
Hammond, Aylesford (accepted)	690	10	0

For altering and converting stone bunks in corn-grinding room and workshops, at the able-bodied workhouse, Mary-place, Notting-dale, for the Guardians of Kensington. Messrs. A. & C. Harston, architects, 15, Leadenhall-street:—

Piersy & Co.	£694	0	0!
A. G. Bolding	389	0	0
T. B. Seward	384	0	0
A. Scott	367	0	0
Higgatt & Brown	359	0	0
Lake & Co.	357	0	0
O. Fawkes	349	6	6
Thurston & Beardwell	338	16	0
W. Stiling	336	0	0
J. W. Bunning	306	10	0
A. Capsey	300	0	0
C. F. Kearley	297	0	0
H. Haynes	287	0	0
Campkin & Son (accepted)	270	10	0!

For semi-detached houses, Shinfield-road, Whitley, Reading, for Mr. G. W. Palmer. Mr. J. Greenaway, architect, 19, Duke-street, Reading:—

Higgs	£1,740	0	0
Sheppard	1,678	0	0
Bourton	1,670	0	0
East & Sons	1,665	0	0
Wicks	1,643	0	0
Searle	1,625	0	0
Strong	1,585	16	0
Denton	1,571	0	0
Woodroffe	1,540	0	0
Soffley	1,526	0	0
Botterill (accepted)	1,514	0	0
Winter	1,470	0	0

For alterations and additions to Audley House, New Barnet, Herts, for Mr. T. M. Harvey:—
Botterill (accepted), Reading.

For new church at Lower Dovercourt, Essex. Mr. J. E. Cutts, architect:—

Palmerston	£1,976	0	0
J. Grimes	1,940	0	0
Tyer	1,936	0	0
Brown, Son, & Co.	1,900	0	0
Bennett Bros.	1,786	0	0
G. Grimwood & Sons	1,690	0	0
Saunders	1,600	0	0
Dobson	1,595	0	0

For pulling down and rebuilding Nos. 10 & 11, Dean-street, Holborn. Mr. H. C. Boyes, architect:—
Gould & Brand (accepted).

For pulling down and rebuilding No. 17, Great Windmill-street, Haymarket, for Mr. J. E. Mortimer:—
Gould & Brand (accepted) £730 0 0

For house and workshops, Walthamstow. Mr. Wm. Paice, Upper Holloway, architect:—
Thorne (accepted).

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